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ABSTRACT

This unit of the Flexible Learning System (FLS) is designed to teach adults how to use toys and games to help children between 3 and 8 years of age learn basic skills and concepts. The text provides an introduction to working with children that is oriented towards new teachers, paraprofessionals, and volunteer staff. Skills emphasized include modeling precise language, contributing to the development of healthy self-concepts, creating conditions for spontaneous learning, helping children develop problem solving skills, and working (responsively) with children. Descriptions are given for a total of 18 toys and 82 games which provide a range of experiences in classifying, ordering, spatial reasoning, patterning, thinking inductively and deductively, solving problems, memorizing, decoding and encoding language, sensing and numerating. Ordered sequences of learning episodes (games) provide specific learning experiences with each of the toys. Unit activities involve working with children, viewing audiovisual materials, making classroom observations, extending and modifying existing games. A basic set of eight toys is accompanied by an introductory film plus a filmstrip and audio cassette for each toy. Other games are illustrated in cartoon strips. All games are described in short easily-read steps. Related FLS materials: "Developing Children's Sense Perception"; "Helping Children Develop Healthy Self-Concepts"; "Working with Children's Concepts"; "Exploring Children's Thinking"; "The Growing Mind". (Author/SB)

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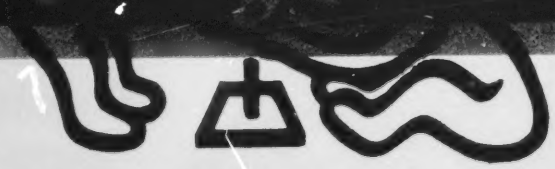

using toys and games with children

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THE FLEXIBLE LEARNING SYSTEM—COMPETENCY-BASED LEARNING UNITS FOR ADULTS IN EARLY CHILDHOOD EDUCATION

Using Toys and Games with Children

Preschool - Third Grade

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Portions of this learning unit appear, in virtually identical form, in a Handbook for Teacher Assistants developed earlier by the Laboratory and published by General Learning Corporation. Another set of activities are reproduced from Parent Guide #2 which is published under license from the Laboratory by General Learning.

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Accompanying materials:

+ basic set of eight toys: sound cans, color lotto, feely bag, stacking squares, wooden table blocks, number puzzle, color blocks, flannel board. ($75.00)

+ filmstrips/cassettes: for basic set of eight toys (one filmstrip per toy). ($100.00)

° four card games: Discovery, Patterns, Sequences, Phonogram matricies. ($35.00 est.)

16 mm films (optional)

+ Learning Growing Learning - introduction to eight basic toys (20 minutes) ($200.00)

° Yes is a Growing Word (12 minutes) ($85.00)

° Discovery is What Happens (12 minutes) ($85.00)

Guide to Securing and Installing the Parent/Child Toy-Lending Library (1780-0993; price $0.60). Available from Superintendent of Documents, Washington, D.C. 20402

provides specifications on toy construction in addition to a rich guide to practical application of toys and games to child care and parent education.

+ part of the Parent/Child Toy-Lending Library, available from General Learning Corp., 250 James Street, Morriston, N.J. 07960

° available from Far West Laboratory, 1855 Folsom Street, San Francisco, CA 94103

Part I

I. Why Should You Do the Work in This Learning Unit?

First, because if you don't, you'll find it difficult to work in a Responsive Education Program classroom. Second, because the skills you'll learn here are essential for anyone working in a classroom with young children. Third, because the skills learned can be an important step upward on a "career ladder" that should lead you to a teaching job at higher pay. And, finally, because helping children learn by playing games can be one of the most rewarding experiences you'll ever enjoy.

Why not begin right now?

II. What You Will Be Able to Do

A. Use eight toys and about 20 activities to help children learn skills and concepts.

B. Use examples of exact and precise language in talking with young children.

C. Make some positive comments to children to help build a positive self-image.

D. Recognize and build upon some spontaneous learning experiences.

III. Materials Needed for Your Training:

A. The 16mm color film called "Learning and Growing and Learning." (The instructor will provide a film projector.)

B. This learning unit called Using Toys and Games with Children.

C. Eight color filmstrips and audio cassette tapes--one for each toy. (General Learning Corp.)

D. One complete set of eight basic toys (General Learning Corp.) The instructor will provide all equipment.

E. A pencil (or pen) and note pad.

F. If you continue on with Section B (beginning on page 51), you will also need eight supplementary toys. This additional training, is optional, of course.

SECTION A

Introduction to Part I

The purpose of this 16-week learning unit is to help teaching staff and volunteers in preschool classrooms or in day-care centers become more effective teachers. The training will take about one hour of time outside the classroom each week and about 20 minutes a day in the classroom for 16 weeks.

The learning unit was originally written to help you work successfully in a Head Start classroom using the Responsive Education Program, but we believe it will be useful for other teachers or volunteers who are just starting to teach or who would like to improve their skills.

Overview

This learning unit is designed to help you become a part of the teaching-learning activities as soon as you enter the classroom. We believe this unit is important, because your reason for being in the classroom is to help guide children's learning. This guidance requires training. Without training, the easiest tasks to do are such activities as serving juice and snacks, picking up after the children and teachers, helping children with their coats, and taking them to the bathroom. We think it is important that both you and the children see the teaching assistant's role as being that of a teacher. This view is particularly important if an assistant is from the same ethnic group as the children and the head teacher is from some other group.

For that reason, the first task is to help each member of the teaching staff prepare to function as a real teacher. Therefore, the assistant should be involved in the teaching-learning process upon entering the classroom. The assistant should use "learning episodes" (like the activities described in this handbook) with children in situations where the involvement is direct and obvious. Also, the teaching assistant can, in a direct way, help children build a positive self-image by stressing that it is good to be Black or Native American or Mexican-American or Puerto Rican. Use of experiences from the children's own community will help.

This learning unit may also be used in a home day-care setting. It serves as a guide for learning activities of three-, four-, and five-year-old children.

The person in charge of a day-care home is not a babysitter. First of all, she takes on all the duties of the mother who is absent from the home for the greatest portion of the day. Secondly, she functions as a preschool teacher.

The duties as a "substitute mother" are usually accomplished easily. Each mother gives some specific instruction for her child; the rest is done by "mother wit."

The role of a preschool teacher will require some training. The next pages will prepare an assistant teacher or a day-care mother to function as a teacher.

This learning unit is built around a set of eight toys:

1. Sound Cans (1 game)
2. Color Lotto (3 games)
3. Feely Bag (2 games)
4. Stacking Squares (5 games)
5. Table Blocks (4 games)
6. Number Puzzle (2 games)
7. Color Blocks (3 games)
8. Flannel Board (3 games)

Each toy offers one or more activities or games (called learning episodes) that describe how to use that toy to teach a child a specific skill or concept, or help him to learn to solve a simple problem. The skills or concepts are important in life and will also help the child to learn more in school. The teaching of particular skills and concepts is an important part of this training unit. However, equally important is the idea of encouraging children to use a variety of games and toys that are enjoyable to learn, rather than drilling them or forcing them to learn against their will. Therefore, it is important that the children play the games because they want to, not because they are required to play. The following rules should be followed with all the games:

1. The child may change the rules of the game at any time. You must follow the child's rules if he changes them.
2. The child may stop playing the game whenever he wishes.
3. Stop the game when the child seems to lose interest.

In addition to use of learning episodes, there are several other behaviors that should be practiced.

I. Exact Language

Each day, practice one method of exact language behavior. It is important to use exact and precise language because:

A. Children will be able to better understand what you are saying. For example, rather than saying, "Get me that," say, "Johnny, please bring the Apple Book to the table."

B. Children learn to develop and expand their own language by listening. Adults are language models for children. If you ask, "Do you want red or blue paper?" rather than, "Do you want this one or that one?" you have used precise language (a) to ask the question and (b) to introduce or reinforce the names of two colors.

II. Positive Comments

Part of helping to build a healthy self-concept is an acceptance of and respect for the children. In order to show this acceptance, we are suggesting use of positive comments about children's work,

clothing, activity, etc. Positive comments should be focused on a specific area. For example, "Mary, I like the yellow sweater you are wearing today," or, "Paul, I like the way you put away the blocks."

III. Spontaneous Learning

Spontaneous learning takes place when a child is playing and the adult finds an opportunity to point out something that the child perhaps did not know within the context of his play. For example, if a child is building in the block area, the adult may say, "Ellen, these blocks are stacked higher than those blocks. Let's count the blocks."

There will be many opportunities during the day to use spontaneous activities for learning. Train yourself to be sensitive to the possibilities by becoming aware of the learning that can take place in each learning center in the classroom.

For example, what are some of the things that are likely to be learned in the art area or the listening area?

Activity 1

1. See the color film called "Learning and Growing and Learning." Even though it was made for parents who use these same toys with preschoolers at home, it has lots of good ideas you can use in your classroom. List three of those ideas.

2. How can you help build the positive self-image of a child?

3. List the three key rules that must be followed for all games used in the Responsive Education Program.

4. Give two examples of exact language behavior.

5. Give two examples of positive comments that you can make to a child.

6. Explain how "spontaneous learning" takes place in a Responsive Education Program classroom.

"The teaching assistant forgot that she was supposed to stop the game when I lost interest..."

Use of Other Games and Activities for Specific Learning

Once you feel confident using the learning episodes in this handbook there are a number of suggestions for using other games and activities in The New Nursery School,* a book and six pamphlets designed to help teachers and assistants in Head Start classrooms. Or you can make up your own learning episodes using other games and toys. Notice that a learning episode has (a) a clearly stated purpose and (b) a careful description of the language that is important in the learning episode.

Suggestions from "New Nursery School" Book

1. "Associating Photographs with Words"
2. "Comments on Learning Opportunities at Snack Time"
3. "Counting"

*Glen Nimnicht, Oralie McAfee, and John Meier. The New Nursery School. General Learning Corporation, New York, 1969.

Procedure

1. Before using any of the toys with the children, read all the learning episodes for that particular toy, look at the filmstrips, and listen to the audio tape.

2. After you have read the learning episodes, practice playing with another adult until you are familiar and comfortable with the games.

3. Set up the material at one of learning centers--for example, the manipulative toy area. If you wish, you can take the written instructions with you while you play.

4. Children will probably come to the table on their own to investigate. When they come, ask if they wish to play a game.

5. Each week play with one toy and the accompanying learning episode for 15 or 20 minutes per day.

6. Record each child's progress on the appropriate form after he has played each group of games. (The first form is found on page 10.)

7. Once you have completed using all eight toys, start different children with the first toy.

Activity 2

First Week

1. Read the learning episodes for Sound Cans.

2. Look at the filmstrips and listen to the audio tapes of the learning episodes for the Sound Cans.

3. Practice with another adult until you feel comfortable with the wording. Some of the wording may seem awkward until you become familiar with them.

4. Set up the game in some area of the room that is away from other activities. Don't ask the children if they want to play. Let them come to you and ask. If no one comes, start shaking the cans and listening to the sounds. When a child comes and asks what you are doing, show him how to play the game. If several children want to play at one time, say, "First, Stan can play the game, then Ann," and "Tomorrow we will play the game again." If all of the children have not played by Thursday, ask the ones who have not if they wish to play.

5. Write down the names of the children who played the game on the form for Sound Cans and answer the questions.

6. Play with the Sound Cans each day for about 20 minutes.

7. At the end of the week, leave the Sound Cans in the classroom so the children can play with them whenever they like.

8. During the week, remind yourself each morning that you will use exact language to tell about position.

Use Exact Words to Tell About Position

You should always speak clearly and in specific terms when describing where something is located. The words you use and the way you use them help children understand and form clearer concepts.

Say: *"The blocks go in the box below the window."*
Instead of: "They go over there."

Say: *"The puzzle piece is on the floor under your chair."*
Instead of: "There it is."

Say: *"The pegs are on the bottom shelf beside the puzzles."*
Instead of: "Right over there."

Sound Cans

EQUIPMENT: Two sets of sound cans. Each set includes six cans, each with different objects or materials inside (for example, a bead or some water). Each makes a different sound when it is shaken.

PURPOSE: To help develop the child's ability to discriminate between sounds.

Specific Instructions:

1. When a child comes to the table say, *"We are going to play a game."* Divide the cans into two sets of six each. One set is marked on top, the other is not.

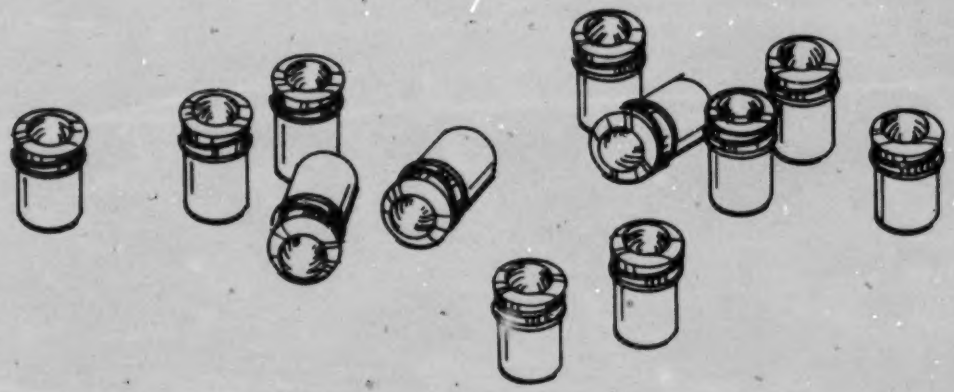
2. Pick up one of the cans in your set and shake it briefly. Say to the child, *"Find one of your cans* (point to the child's six cans) *that makes the same sound as the one I am shaking."*

3. If the child shakes a can that makes a different sound, say, *"Your can does not make the same sound as mine."* You should shake your can again and then say, *"Try another can."*

4. If the child's can makes the same sound as the one you are shaking, say, *"These two cans make the same sound."* Put the two cans aside.

5. Select another can from the five remaining cans in your set. Shake it and say to the child, *"Find one of your cans* (point to the five remaining cans in the child's set) *that makes the same sound as the can I am shaking."*

6. Continue the game until the child finds all of the cans, or no longer wants to play.



SOUND CANS

CHILD'S NAME							
HOW MANY TIMES DID CHILD PLAY GAME?							
DID CHILD CHANGE RULES?							
DID CHILD BECOME FRUSTRATED?							
DID CHILD CONTINUE WHOLE GAME?							
DID CHILD ENJOY GAME?							
HOW MANY CANS DID HE MATCH CORRECTLY?							
COMMENT							

Activity 3

Second Week

1. Read all the learning episodes for Color Lotto. Then look at the filmstrips and listen to the audio tapes.

2. Practice using the learning episodes for Color Lotto with another adult until you are familiar with it. You will probably need to use only the first learning episode, but some children may be ready to try a harder level of the game. If a child can easily match the colors, go on to Game II.

3. Set up the game in the area you previously selected and wait for the children to come.

4. Play with Color Lotto (Game I or II) for about 20 minutes each day for a week.

5. Write on the form the names of the children who play the game and answer the questions.

6. At the end of the week, look over the form that you kept on Color Lotto games to check the children's progress. You will then know the kind of help to give individual children.

7. Leave the toy out so that children may play with it in the classroom.

7. Find opportunities during the day to talk about colors in the room, colors of the children's clothing, etc. For example: "Ronald has made a pile of blue blocks and a pile of yellow blocks."

Use Exact Words to Tell About Action

You should always try to show and tell clearly how a person or animal or thing is moving or acting. Use descriptive words as often as possible; for example:

Say: *"Robert skipped down the walk."*

Instead of: "Robert went down the walk."

Say: *"The cat is chasing the bird."*
Instead of: "The cat is after the bird."

Say: *"Wanda is walking slowly."*
Instead of: "Wanda is walking."

Color Lotto Game I

EQUIPMENT: A color lotto board and two sets of nine small colored squares. One set of small squares is for the assistant and the other set is for the child.

PURPOSE: To help develop the child's ability to discriminate among colors, as well as determine similiarities.

Specific instructions:

1. When a child comes, ask, *"Would you like to play a game?"*

2. Collect all of the squares and place them in front of you.

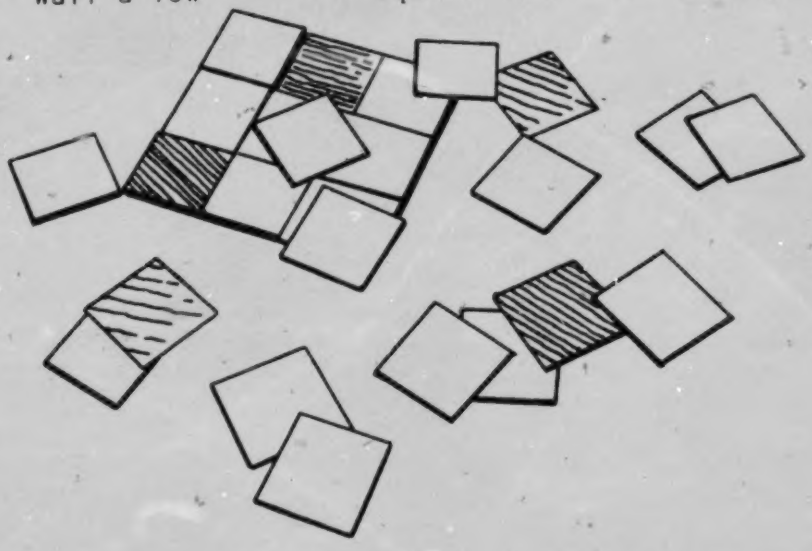
3. Hold up one of the colored squares (for example, a red square) and say, *"Find a square on your board that is red, the same color as this square."*

4. If the child points to a square of a different color, move the square you are holding close to his board so the child can see the difference. Wait a few seconds. If the child does not correct himself, say, *"These two squares are not the same color. Try again."*

5. If the child points to the square that is the same color, give him the square you are holding and say, *"Yes, these two squares are the same color. They are both red. Put this red square on your board."*

6. Then hold up another square (for example, a blue one) and say, *"Find a square on your board that is blue, the same color as this square."* If the child points to a square that is the same color, say, *"These two squares are the same."*

7. Once the child has put all the squares on the board, pick up a colored square from the remaining set and say, *"Take a square off the board that is yellow, the same color as the square that I am holding."*



8. If the child picks up a square of a different color, place it next to the square so the child can see the difference. Wait a few seconds. If the child does not correct himself, say, *"These two squares are not the same color. Try again."*

9. If the child picks up a square that is yellow, take the child's square and say, *"These two squares are both yellow."*

10. Continue game until all squares are taken off child's board, or until child loses interest.

Color Lotto Game II

EQUIPMENT: A color lotto board and two sets of nine colored squares. One set of small squares is for the assistant and the other set is for the child.

PURPOSE: To help the child learn the names of colors.

Specific Instructions:

1. After the child has been successful with Color Lotto Game I, introduce this game.

2. Place the lotto board in front of the child. The teacher/assistant should have one set of colored squares in front of her (or him).

3. Say to the child, *"Find a square on the lotto board that is blue."* Do not hold up a blue square. If the child points to a square of a different color, then pick up a blue square and say, *"Find a square that is blue, the same color as this square."*

4. If the child points to the blue square on the board, hand him the blue square and ask, *"What color is this square?"* If the child does not answer or gives an incorrect answer, say, *"This square is blue. You may put the blue square on the board."*

5. Then say, *"Find a square that is green."* Do not hold up a green square for the child to see. If he points to a square of a different color, hold up a green square and say, *"Find a square that is green, the same color as this square."*

6. If the child points to a green square, hand him the green square and ask, *"What color is this square?"* If he does not answer, say, *"This square is green."*

7. Continue until all the squares on the board are covered. Place the second set of colored squares in front of you and say, *"Take off a square that is blue."* Do not show him a blue square. If he takes off a square that is not blue, then hold up the blue square and say, *"Take off a square that is blue."* If he takes off a blue square, ask, *"What color is this square?"* If he answers *"Blue,"* say, *"This is a blue square."*

8. Continue until all the squares are removed or until the child no longer wants to play.

COLOR LOTTO

CHILD'S NAME							
GAME I							
HOW MANY TIMES DID CHILD PLAY GAME?							
DID CHILD ENJOY GAME?							
STAY FOR ALL OF IT?							
HOW MANY COLORS COULD CHILD MATCH?							
COMMENT							
GAME II							
HOW MANY TIMES DID CHILD PLAY GAME?							
DID CHILD ENJOY GAME?							
LIST COLORS CHILD DID NOT NAME:							
COMMENT							

Activity 4

Third Week

1. Read learning episodes for Feely Bag Game I and II and review the filmstrip and audio tape.

2. Practice the game with another adult until you are familiar with it.

3. Set up the game at the selected activity table. By this time children will have become accustomed to playing games at the table, and will be ready to come when the material is set up.

4. Play the game about 20 minutes each day for a week.

5. Write the names of the children who play Feely Bag games and record answer to questions.

6. At the end of the week, look over the form for Feely Bag to check what each of the children did during the week. Remove Sound Cans from room.

7. A suggestion for extending the skills the children learned with Feely Bag Game I: using the concept formation area, cut out paper or felt circles, squares, circles, and rectangles, and make a display on the wall. You can make objects with the shapes:

   A house or truck

8. Practice the language behavior on "Using Exact Words to Tell About Things."

Use Exact Words to Tell About Things

You should always show and tell clearly the kinds of things you are talking about. Some words tell much more about things than other words do. If you use the words "This" or "These" or "Those," you don't give as much information as you could. Here are some suggestions:

Say: *"This ball has a round shape."*
Instead of: "This is a circle."

Say: *"May I have the longest block?"*
Instead of: "May I have the big block?"

Say: *"That animal is a rabbit."*
Instead of: "That is a rabbit."

Say: *"This sandpaper is rough; the board is smooth."*
Instead of: "This is rough; this is smooth."

Say: *"Do you want some more yellow paper?"*
Instead of: "Do you want some more yellow?"

Feely Bag Game I

EQUIPMENT: Small drawstring bag and two sets of cut-out shapes. Each set has these four shapes: a circle, a square, a triangle, and a rectangle.

PURPOSE: To help the child identify a shape by touch and by sight.

Specific Instructions:

1. Take one each of the four shapes and put them in the bag; then place the other four shapes on the table so the child is able to see them.

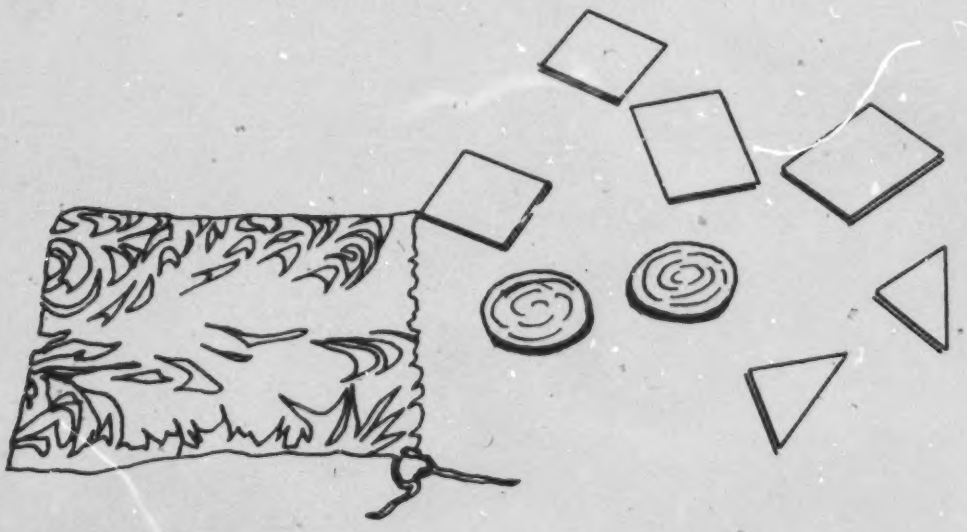
2. Pick up the circle from the table and say to the child, *"Find a shape in the bag that is the same shape as this circle."*

3. If the child chooses a different shape, hold up your circle and the shape the child took from the bag and say, *"These two are not the same."* Put the shape the child selected aside. *"Try again."*

4. If the child chooses a circle, say, *"These two shapes are the same. They are both circles."*

5. After the child has found the circle, place the four shapes in the bag again. Pick up the triangle from the other shapes, and say, *"Find a shape in the bag that is the same as this triangle."* Continue until the child has identified all four shapes.

Note: If the child looks in the bag while playing the game, say, *"Now find the shape without looking in the bag."*



Feely Bag Game II

EQUIPMENT: Small drawstring bag and two sets of cut-out shapes. Each set has these four shapes: a circle, a square, a triangle, and a rectangle.

PURPOSE: To help the child identify a shape that he can feel but cannot see.

Specific Instructions:

1. Take one each of the four shapes and put them on the floor or on a table. Put the other four aside.

2. Say to the child, *"Close your eyes while I put a shape in the Feely Bag."*

3. Take the circle from the remaining four shapes you have set aside and put it in the Feely Bag.

4. Then say to the child, *"Feel the shape inside the bag and find a shape on the table that is the same."*

5. If the child selects a different shape, have him feel the shape in the bag and the shape he selected on the table at the same time and say, *"These shapes are not the same; try again."*

6. If the child chooses a circle from the table, let him take the circle out of the Feely Bag and compare it with the circle he chooses from the table and say, *"These two shapes are the same. They are both circles."*

7. Place the four shapes on the table again. Have the child close his eyes while you put one of the other shapes (for example, a square) in the bag. Have the child feel the shape in the bag and find one on the table that is the same.

8. Continue until the child has identified all four shapes in this way or until he no longer wishes to play.

FEELY BAG

CHILD'S NAME							
GAME I							
HOW MANY TIMES DID CHILD PLAY GAME?							
DID CHILD ENJOY GAME?							
LIST SHAPES CHILD WAS UNABLE TO NAME:							
COMMENT							

FEELY BAG

CHILD'S NAME							
GAME II							
HOW MANY TIMES DID CHILD PLAY GAME?							
DID CHILD ENJOY GAME?							
LIST SHAPES CHILD WAS UNABLE TO IDENTIFY:							
COMMENT							

Activity 5

Fourth Week

1. Read learning episodes and review filmstrip and audio tape for Stacking Squares Game I, II, and III.

2. Practice playing all three games with an adult in order to understand what each would feel like at child's level.

3. Set the game up at the activity table. Begin with Game I.

4. Write the name of each child who comes to play.

5. Play games for 20 minutes each day for a week.

6. As the children play the game, check the form to determine which children are ready for Game II and III.

7. Arrange Concept Formation area with colors introduced in this game. For example: Use red, blue, yellow, and green colored paper and cut out the names of the colors. Collect articles of these colors:

   and place them on the board as shown. You might ask a child, *"What else can you think of that's yellow?"*

8. At the end of the week, place the toy in the classroom. Remove Color Lotto if the children have lost interest.

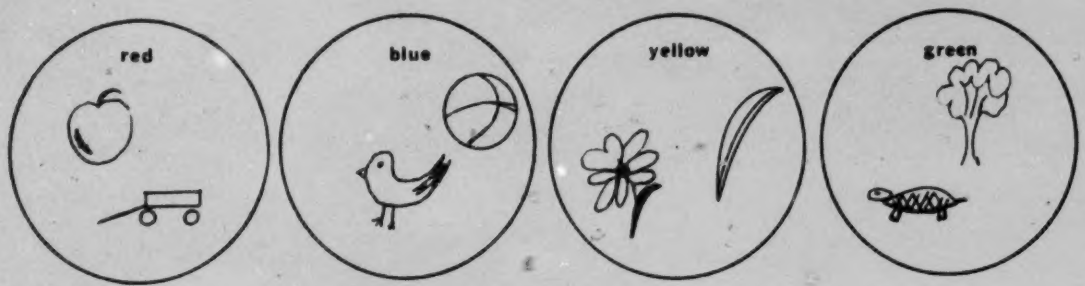
9. Practice using exact words to explain ideas:

   Say: *"This has a rough texture."*
   Instead of: "This is rough."

   Say: *"Feel the skin of this fruit."*
   Instead of: "Feel the skin."

   Say: *"Yes, the blocks are all the same color, red."*
   Instead of: "Yes, the blocks are all the same."

   Say: *"The handle of the saw is cracked."*
   Instead of: "The handle is cracked."



Stacking Squares Game I

EQUIPMENT: The Stacking Squares set includes 16 colored wooden squares that fit in order on a special wooden post.

PURPOSE: To help the child learn the terms "same size" and "not the same size."

Specific Instructions:

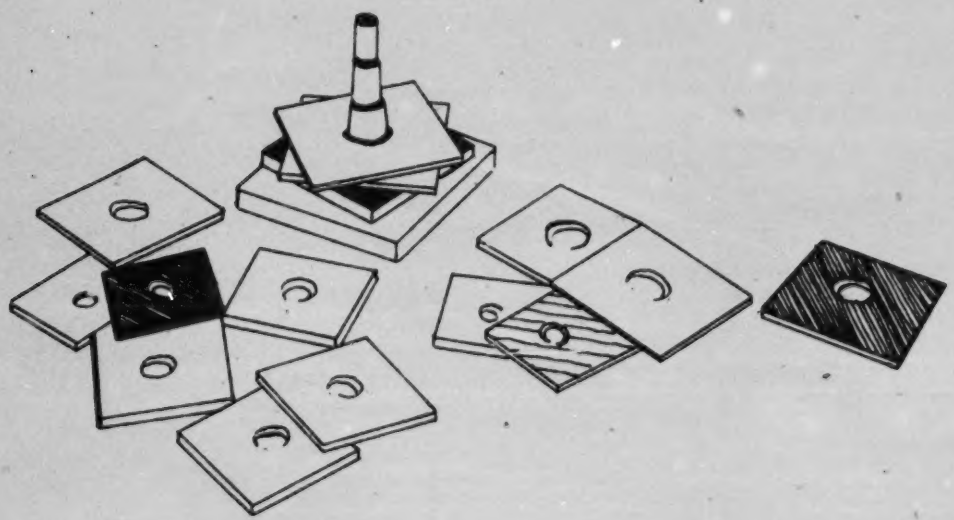
1. To begin, say *"Would you like to play a game now?"* Remove the wooden squares from the stacking post and give the child the four blue squares. Keep the other squares in front of you.

2. Select one of the squares in front of you and hold it up and say to the child, *"Point to a square that is the same size as this square."*

3. If the child chooses a square that is not the same size, hold your square close to the square the child selected. Wait a few seconds to allow the child to see the difference in size. If the child does not see the difference, say, *"These squares are not the same size. Point to a square that is the same size."*

4. If the child chooses a square that is the same size as the square you are holding, hand your square to the child and say, *"Both of these squares are the same size. You may put this square on top of your square."*

5. Continue this way until all the squares are matched in front of the child.



Stacking Squares Game II

EQUIPMENT: The Stacking Squares set.

PURPOSE:

a. To teach or strengthen the learning of same color and not the same color.

b. To teach or strengthen the learning of the color names: red, blue, green, and yellow.

Specific Instructions:

1. Say: *"Would you like to play a game with the Stacking Squares?"*

2. Remove the squares and give the child the eight smallest squares (two yellow, two red, two green, two blue). You keep the other eight.

3. Choose one of the red squares in front of you and say, *"Point to a square that is the same color as this red square."*

4. If the child points to a different color, say, *"That color is green. Point to the red square like this one."*

5. If the child points to a red square, say, *"Both the squares are red. Put your red square on top of this one."*

6. Continue game until all squares are matched in front of the child.

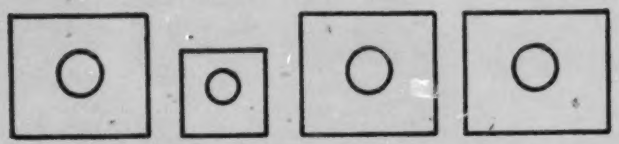
Stacking Squares Game III

EQUIPMENT: The Stacking Squares set.

PURPOSE: To help the child recognize a pattern in a group of objects (color or size) and eliminate those which do not belong in the group.

Specific Instructions:

1. Take three of the largest and one of the smallest squares and place them in a row:



Ask the child, *"Which square does not belong in this group?"*

2. If the child does nothing, or points to one of the large squares, say, *"Point to all the squares that are the same size ...now point to the square that is not the same size."* If the child again does nothing, or points to one of the large squares, pick up the smallest square and say, *"This square does not belong in the group because it is small and the other squares are all large."*

3. If the child points to the small square, say, *"That square does not belong in this group because it is small and the other squares are large."*

4. Continue the game using other squares with three of the same size and one of a different size.

5. The game can be played using three squares of the same color and one of a different color. Follow the same directions as above.

STACKING SQUARES

CHILD'S NAME							
GAME I							
HOW MANY TIMES DID CHILD PLAY GAME?							
DID CHILD ENJOY GAME?							
WAS CHILD ABLE TO MATCH SAME SIZE SQUARES?							
COMMENT							

STACKING SQUARES

CHILD'S NAME							
GAME II							
HOW MANY TIMES DID CHILD PLAY GAME?							
DID CHILD ENJOY GAME?							
WAS CHILD ABLE TO MATCH SAME COLOR?							
LIST COLORS CHILD WAS UNABLE TO MATCH:							
COMMENT							

STACKING SQUARES

CHILD'S NAME							
GAME III							
HOW MANY TIMES DID CHILD PLAY GAME?							
DID CHILD ENJOY GAME?							
COULD CHILD CHOOSE WHICH SQUARE DID NOT BELONG IN GROUP?							
COMMENT							

Activity 6

Fifth Week

1. Read the learning episodes and view the filmstrips and audio tapes for Wooden Table Blocks, Game I, II and III.

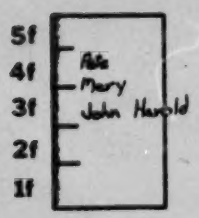
2. Practice the games with an adult until you are comfortable.

3. Set up the game.

4. Write the children's names on the form and answer the questions. Check the forms each day to see which children may be ready for Game II and III.

5. Play the game for 20 minutes each day.

6. A suggestion for concept formation area: take a piece of paper at least five feet long and wide enough to write several names across. Use this to measure the children. Write the name of each child next to his height. Use the opportunity to talk about tallest, shortest, same size, taller, shorter. "Who is shorter than John?" "Who is taller than John?" etc.



7. Leave the toy in the classroom at the end of the week; remove the Feely Bag game.

8. Practice using exact words to give instructions.

Use Exact Words to Give Instructions

You should try to say exactly what you want the child to do. Don't just give hints. Be sure the child knows clearly what you expect. Don't use words that could be understood in several different ways. Here are some ideas:

Say: *"Keep the paper on the table."*
Instead of: "We don't put paper in our mouths, do we?"

Say: *"You have some blocks. You keep these blocks and let him use the others."*
Instead of: "Wouldn't you like to share your blocks with him?"

Say: *"It is time to go inside."*
Instead of: "Don't you thing it is time to go in now?"

Wooden Table Blocks Game I

EQUIPMENT: One box of Wooden Table Blocks including ten sizes of blocks of units 1 to 10. The largest block is ten times as tall as the smallest. The other blocks are the units between one and ten.

PURPOSE: To help the child learn two size relationships...tallest and shortest.

Specific Instructions:

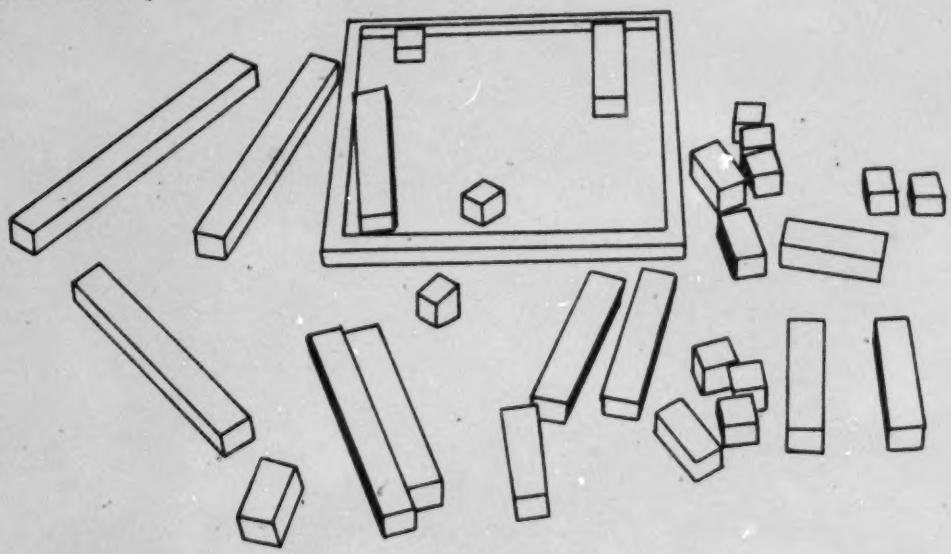
1. Say to the child, *"Would you like to play a game with the blocks?"* Put one each of the blocks (1-10) in front of you to start the game. Put aside the other blocks.

2. Take blocks of sizes 1, 5, 10 and stand them on the floor or table in front of the child. Ask, *"Which block is the tallest?"*

3. If the child points to a block that is not the tallest, say, *"You have picked the middle-sized block* (or the shortest block). *Find a block that is the tallest."* If the child still does not choose the tallest block, say, *"You have picked the shortest block* (or middle-sized block). *This block is the tallest"* (pointing to the tallest 10 block).

4. Change the blocks to lengths 2, 6, 9. Say, *"Find the block that is the shortest."* If he chooses the shortest, tell him, *"That block is the shortest."* If he picks one that is not the shortest, say, *"You have picked the middle-sized* (or the tallest) *block. This block is the shortest"* (pointing to the shortest block).

5. Continue to change the blocks so that the child is working with different lengths. To make the game more difficult, use blocks that are closer in length, such as lengths 6, 7, and 8.



Wooden Table Blocks Game II

EQUIPMENT: One box of Wooden Table Blocks, including ten sizes of blocks of units 1 to 10. The largest block is ten times as tall as the smallest. The other blocks are the units between one and ten.

PURPOSE: To help the child learn size relationships...taller and shorter.

Specific Instructions:

1. After the child has played Game I several times or seems bored, begin Game II.
2. Place one each of blocks 1-10 on the floor in front of the child. Pick up the 3 block and say, *"Find a block that is taller that this block."* Hand the child the 3 block.
3. If the child chooses a block that is taller, say, *"This block* (point to the one he has chosen) *is taller than this one?"* (point to the 3 block).
4. Pick up another block (for example, the 5) and say, *"Now find a block that is shorter than this block."*
5. Continue the game until the child understands the meanings of "taller" and "shorter," or no longer wishes to play.

Wooden Table Blocks Game III

EQUIPMENT: One box of Wooden Table Blocks, including ten sizes of blocks of units 1 to 10. The largest block is ten times as tall as the smallest. The other blocks are the units between one and ten.

PURPOSE: To help the child learn size relationships.

Specific Instructions:

1. This game should be played with the child after he has completed Game I and II.
2. Place all the blocks beside you to begin the game.
3. Place two 3 blocks, a 1, and 5 block in front of the child. Hand him one of the 3 blocks and say, *"Find a block that is the same size as this one."* If he points to the same size block (a 3 block), say, *"These two blocks are the same size."*
4. If he points to a different size block, say, *"You have picked a taller* (or shorter, as the case may be) *block. Find one that is the same size."*
5. Change the blocks to one 2, one 6, and two 4 blocks. Continue the game as in the instructions above. The game may be made more difficult by choosing blocks that are closer together in length (for example, 4, 5, and 6 blocks).

Note: There are no duplicate blocks in sizes 7, 8, 9, and 10.

TABLE BLOCKS

CHILD'S NAME							
GAME I							
HOW MANY TIMES DID CHILD PLAY GAME?							
DID CHILD ENJOY GAME?							
DID CHILD KNOW TALLEST?							
DID CHILD KNOW SHORTEST?							
COMMENT							
GAME II							
HOW MANY TIMES DID CHILD PLAY GAME?							
DID CHILD ENJOY GAME?							
DID CHILD KNOW TALLER?							
DID CHILD KNOW SHORTER?							
COMMENT							

30 PART I

TABLE BLOCKS

CHILD'S NAME							
GAME III							
HOW MANY TIMES DID CHILD PLAY GAME?							
DID CHILD ENJOY GAME?							
DID CHILD KNOW SAME SIZE?							
COMMENT							

Activity 7

Sixth Week

1. Read the learning episodes and look at filmstrip and audio tape for Number Puzzle Game I and II.

2. Practice the two games with an adult.

3. Set up the game at the activity table.

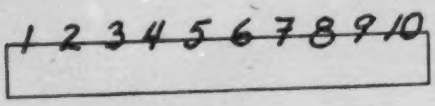
4. Write the children's names on the form when they decide to play the game.

5. Play the game for 20 minutes each day. Check each day for children who may be ready to go on to Game II.

6. Suggestions for concept formation area: Cut out numerals from 1 to 10 and pin them to the board with the corresponding number of dots nest to each numeral.

1 ●	6 ●●●●●●
2 ●●	7 ●●●●●●●
3 ●●●	8 ●●●●●●●●
4 ●●●●	9 ●●●●●●●●●
5 ●●●●●	10 ●●●●●●●●●●

Or make a number line with a 10" x 1" piece of paper. Remember, once the concept formation area is arranged, find opportunities to talk about the display. There will be other times in the classroom to talk about numbers. "Harold, there are two children painting now. When one is finished, you may have a turn."



7. At the end of the week, leave the Number Puzzle in the room and remove Stacking Squares.

8. Practice using positive comments. Using positive comments shows approval of a specific thing or act.

Say: *"Lisa, thank you for bringing the juice to the table."*
Instead of: "Lisa is a good girl."

Say: *"Henry, your picture is very attractive. Will you tell me about it?"*
Instead of: "Henry is the best artist in the class."

Say: *"Right, Max, 2 plus 2 is 4."*
Instead of: "Max, you are a very smart little boy."

Say: *"Yvonne, your green blouse is very pretty."*
Instead of: "Yvonne is so pretty."

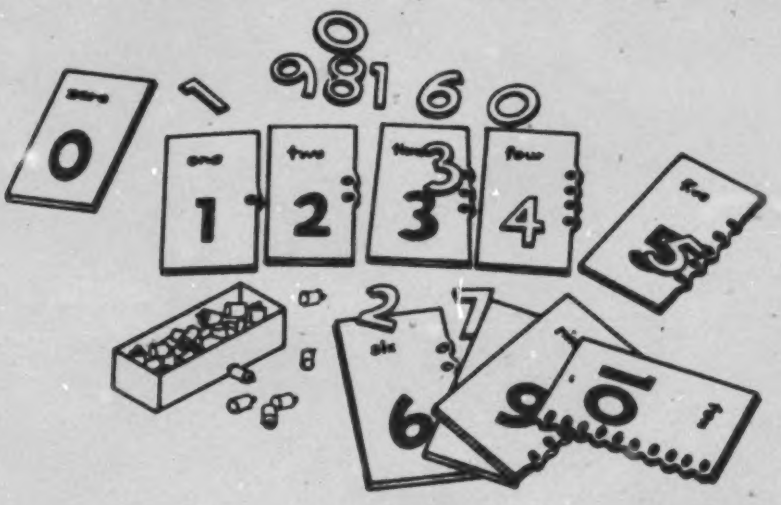
Number Puzzle Game I

EQUIPMENT: One Number Puzzle with complete set of red pegs.

PURPOSE: To help the child learn to match numerals with the number quantities they represent.

Specific Instructions:

1. Pick up the section 1 of the puzzle and say, *"This is the numeral 1* (point to the numeral) *...Let's count how many pegs there are...1."* Put in the peg as you count.
2. Now pick up the section 2 and say, *"This is the numeral 2* (point to the numeral). *Let's count the pegs...1...2."* Do not worry if the child does not count along with you. Continue counting until you have counted and put the pegs in all ten sections of the puzzle.
3. After the child has played this game several times or becomes bored, go on to Game II.



Number Puzzle Game II

EQUIPMENT: One Number Puzzle with complete set of red pegs.

PURPOSE: To help the child learn to count in sequence.

Specific Instructions:

1. To begin, pick-up the section 1 of the puzzle and say, *"This is the numeral 1 and there is 1 peg. Which numeral comes next?"* If the child selects the wrong numeral, pick up section 2 and say, *"The numeral 2 comes next. Let's count the pegs...1...2."*
2. If the child selects section 2, say, *"The numeral 2 comes next. Let's count the pegs."*
3. Continue the game in this way until all ten sections of the puzzle have been put together.

NUMBER PUZZLE

CHILD'S NAME							
GAME I							
HOW MANY TIMES DID CHILD PLAY GAME?							
DID CHILD ENJOY GAME?							
DID CHILD COUNT ALONG?							
LIST NUMBERS CHILD KNEW:							
COMMENT							
GAME II							
HOW MANY TIMES DID CHILD PLAY GAME?							
DID CHILD ENJOY GAME?							
LIST NUMBERS CHILD PUT TOGETHER:							
DID CHILD COUNT PEGS?							
COMMENT							

Activity 8

Seventh Week

1. Read the learning episodes and view the filmstrips and audio tapes for Color Blocks Game I, II, and III.*

2. Practice the game with another adult before introducing it to the class.

3. Set up the game at the table. Start with Game I.

4. Write the names of children who come to play and answer the questions on the form for Color Blocks.

5. Play the game for 20 minutes each day, checking to see which children are ready for Game II and III.

6. During the week, concentrate on discussing positions, e.g., under, over, beside, in front of..."May is standing in front of Mike."

7. Arrange the concept formation area with a pattern similar to the one in Game II.

8. At the end of the week, leave the Bead-O-Graph in the classroom and remove Wooden Table Blocks.

9. Practice using children's names. When speaking to a child in the classroom, make a point of using his name. Using a child's name helps him develop a good image of himself, and he gets pleasure and satisfaction from hearing his name.

   Say: *"Nancy, please put your coat on. We're going outside."*
   Instead of: "Put your coat on."

   Say: *"Mary and Florence, please walk in the classroom."*
   Instead of: "You two children stop running."

   Say: *"Robin, do you want juice?"*
   Instead of: "Do you want juice?"

**To play the Color Blocks game you use materials from the toy called Bead-O-Graph. Select 16 color blocks (four red, four blue, four yellow, four green) from the assortment in the box. Do not use the other pieces from the set for these games.*

Color Blocks Game I

EQUIPMENT: One set of 16 Color Blocks, four each of four different colors.* A box.

PURPOSE: To help the child learn positional words.

Specific instructions:

1. Place a box top (right side up) in front of the child and hand him one red block. Say, *"Put the red block on top of the box."*

2. If he puts it in a different place, such as behind the box, say, *"You have put the block behind the box. Now put it on top of the box."*

3. When he puts it on top of the box, say, *"You have put the block on top of the box. Now put the block under the box."*

4. Continue the game as above using the following directions:

   a. "Put the block *behind* you" or "Put the block *in back* of you."

   b. "Put the block *in front* of you."

   c. Place the block again on top of the box. Then say, "Take the block *off* the box."

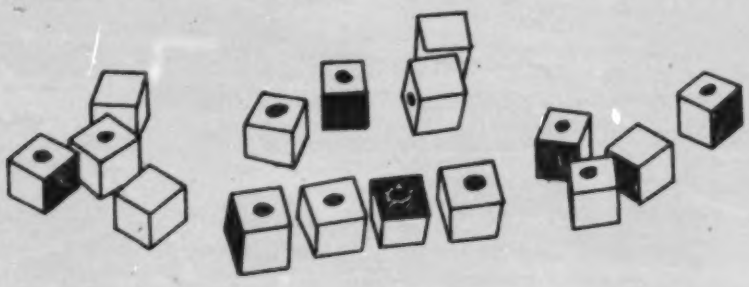
   d. "Put the block *underneath* the box."

   e. Lift the box top and turn it upside down. Then say,"Put the block *in* the box."

   f. "Now take the block *out* of the box and put it at the *side* of the box."

   g. Take two blue blocks and place them a few inches apart. Then say, "Put your red block *between* the two blue blocks."

   h. Reinforce with other activities using positional words, e.g., "Beth, stand *behind* Joe."



**The 16 blocks are selected from a much larger number packed in the Bead-O-Graph box. Select four red, four blue, four green, and four yellow blocks. Do not choose any round beads.*

Color Blocks Game II

EQUIPMENT: One set of 16 Color Blocks, four each of four different colors.*

PURPOSE: To help the child see and reproduce a pattern.

Specific Instructions:

1. To begin the game, say, *"I'm going to put the blocks in a special kind of row; watch."* Place the blocks in a pattern like this:

green	red	blue	green	red	blue

2. Say to your child, *"Now you put the blocks in a row so they look like these blocks?* (pointing to the pattern you have made).

3. If the child is not able to copy the pattern, say, *"First put down one green block...then one red block...then one blue block...Now put down one green block..."*

4. If the child is able to copy the pattern, make another one like this:

red	green	red	green
yellow	blue	yellow	blue

and say to the child, *"Put the blocks in a row so that they look like these blocks."*

5. Continue the game, changing the patterns until the child can easily reproduce the patterns that you make.

**The 16 blocks are selected from a much larger number packed in the Bead-O-Graph box. Select four red, four blue, four green, and four yellow blocks. Do not choose any round beads.*

Color Blocks Game III

EQUIPMENT: One set of 16 Color Blocks, four each of four different colors.*

PURPOSE: To help the child learn and to give him experience in extending a pattern.

Specific instructions:

1. If he wants to, allow the child to play with blocks for five minutes.

2. Take the blocks and say, *"Watch while I put the blocks in a special kind of row."* Make a pattern like this:

yellow	red	yellow	red	yellow

3. Then say, *"What color block comes next in this kind of row?"* If the child chooses a block other than a red one, say, *"First there is a yellow block, next a red block, then another yellow block and a red one, and then a yellow one; the next block should be red."* Hand the child a red block to put down; then ask, *"Now what block comes next?"* If the child is still unable to extend the pattern, go back to Game II and wait a day or so before you plan Game III again.

4. If the child makes a correct response (he chooses a red block), say, *"Yes, a red block comes next; what color block comes after the red block?"*

5. Make a pattern like this:

red	blue	red
green	yellow	green

Ask the child, *"What color block goes here* (pointing to the top row of blocks), *and what color goes here?* (pointing to the lower three blocks). If he chooses blue for the top row and yellow for the bottom, ask, *"What color comes next?"*

6. Continue playing the game, changing the pattern and allowing the child to extend it.

**The 16 blocks are selected from a much larger number packed in the Bead-O-Graph box. Select four red, four blue, four green, and four yellow blocks. Do not choose any round beads.*

COLOR BLOCKS (BEAD-O-GRAPH)

CHILD'S NAME							
GAME I							
HOW MANY TIMES DID CHILD PLAY GAME?							
DID CHILD ENJOY GAME?							
LIST POSITIONS CHILD DID NOT KNOW:							
COMMENT							
GAME II							
HOW MANY TIMES DID CHILD PLAY GAME?							
DID CHILD ENJOY GAME?							
COULD CHILD REPRODUCE PATTERN?							
COMMENT							

COLOR BLOCKS (BEAD-O-GRAPH)

CHILD'S NAME							
GAME III							
HOW MANY TIMES DID CHILD PLAY GAME?							
DID CHILD ENJOY GAME?							
COULD CHILD EXTEND PATTERN?							
COMMENT							

40 PART I

Activity 9

Eighth Week

1. Read the learning episodes for all three Flannel Board games and look at the filmstrips and audio tapes.

2. Practice the games with another adult.

3. Set up the game in the classroom at the activity table.

4. As the children come to play, record their names and answer the questions of the form.

5. Play the games for 20 minutes each day. The children will probably be able to move from one game to another easily. For those who can't, play with Game I.

6. Arrange a concept formation area. Use objects other than the shapes used in the Flannel Board games. For example, use two black dogs and one brown; three yellow chicks and one white. Print across the board, "Which one does not belong with the others?" Answer questions that the children ask about the board.

7. Leave Flannel Board and felt shapes in classroom. Remove the Number Puzzle.

8. Practice using spontaneous learning opportunities. (See Overview on page 2.) Concentrate on one center a day. Start with the art center. what is the purpose of an art area? What are some of the skills and concepts to be learned? Then as you work with the children in this area, you will be able to capitalize on learning possibilities. A child is painting. She has red paint and white paint. If the two colors run together, you may say, "Gloria, the red and white paint mixed make pink paint."

Flannel Board Game I

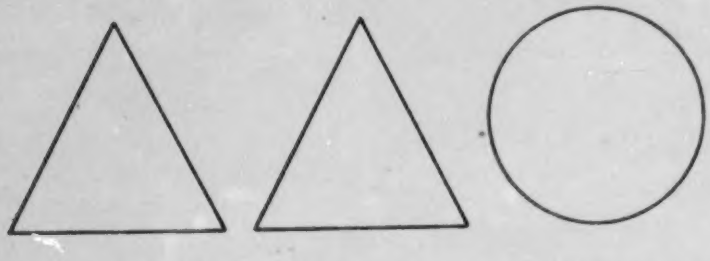
EQUIPMENT: One flannel board and 36 small color shapes made of wood--circles, squares and triangles. There are two sizes of each shape. There are three colors of each size--red, yellow, and blue.

PURPOSE: To help the child learn same and not the same in regard to shape, size, and color, and to discover which item is not part of a given concept.

Specific Instructions:

1. Place the flannel board and shapes on the table.

2. Remove all the shapes from the flannel board and put them next to you. Place two large red triangles and one large red circle on the board.



3. Say to the child, *"Find a shape that doesn't belong with the other shapes."* If the child points to the circle, say, *"The circle is not the same shape as the triangles."*

4. If the child points to a triangle or doesn't answer at all, point to one of the triangles and say, *"Point to a shape that is the same as this shape."* If the child points to the other triangle, say, *"The triangles are the same. Now point to the shape that is not the same as the triangles."* If he now points to the circle, say, *"The circle doesn't belong with the triangles. It is not the same shape."*

5. Then put two shapes of the same size, color and shape, and one of the same size and color but a different shape (two small yellow squares and one small yellow circle) and ask the child, *"Which shape doesn't belong with the other shapes?"*

6. Then go on to Game II.

Flannel Board Game II

EQUIPMENT: One flannel board and 36 small color shapes made of wood--circles, squares, and triangles.

PURPOSE: To help the child learn same and not the same in regard to size and to discover which item is not part of a given concept.

Specific Instructions:

1. Put a set of blue circles on the flannel board like this: (two large, one small)

Say to the child, *"Point to the circle that doesn't belong with the other circles."*

2. If he points to the smaller circle, say, *"The small circle is not the same size as the large circles."*

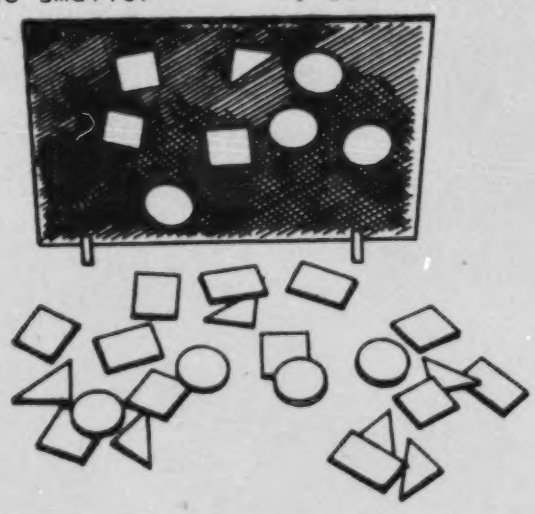
3. If the child points to one of the large circles or does not answer at all, you should point to one of the large circles and say, *"Point to the circle that is the same size as this one."*

4. If he points to a large circle, say, *"The large circles are the same size. Now point to the circle that is not the same as the other circles."*

5. If he points to the small circle, say, *"The small circle doesn't belong with the large shapes. It is not the same size."*

6. Change the shapes so that there are two of the same shape, color and size, and one of the same shape, color but a different size (two small red triangles and one large red triangle).

7. Go to Game III.



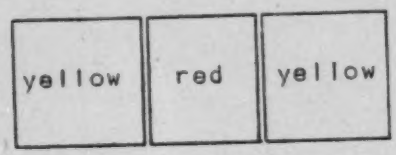
Flannel Board Game III

EQUIPMENT: One flannel board and 36 small color shapes made of wood--circles, squares and triangles.

PURPOSE: To help the child learn which colors are the same and which are not the same and which item is not part of a given set.

Specific instructions:

1. Place two small yellow squares and one small red square on the flannel board.



Say to the child, *"Point to the square that doesn't belong with the other squares."* If the child points to the red square, say, *"The red square is not the same as the yellow squares."* If the child points to a small yellow square, you point to the other yellow square and say, *"Point to the square that is the same as this square."*

If the child points to the other yellow square, say, *"The yellow squares are the same. Now point to the square that is not the same as the yellow squares."* If he points to the red square, say, *"The red square doesn't belong with the yellow squares. It is not the same color."*

2. Then arrange two small red triangles and one small yellow triangle like this:

Say to the child, *"Point to the triangle that doesn't belong with the other triangles."* If the child points to the yellow triangle, say, *"The yellow triangle doesn't belong with the red triangles. It is not the same color."*

3. If the child points to a small red triangle, point to the other red triangle and say, *"Point to a triangle that is the same as this triangle."* If the child points to the other red triangle, say, *"The red triangles are the same color. Now point to the triangle that doesn't belong with the red triangles."* If he points to the yellow triangle, say, *"The yellow triangle doesn't belong with the red triangle. It is not the same color."*

4. Continue the game, choosing shapes until the child understands items that do not belong in a set, or until he no longer wants to play.

FLANNEL BOARD

CHILD'S NAME							
GAME I							
HOW MANY TIMES DID CHILD PLAY GAME?							
DID CHILD ENJOY GAME?							
WAS CHILD ABLE TO SELECT WHICH DIDN'T BELONG ACCORDING TO SHAPE?							
COMMENT							
GAME II							
HOW MANY TIMES DID CHILD PLAY GAME?							
DID CHILD ENJOY GAME?							
WAS CHILD ABLE TO SELECT WHICH DIDN'T BELONG ACCORDING TO SIZE?							
COMMENT							

FLANNEL BOARD

CHILD'S NAME							
GAME III							
HOW MANY TIMES DID CHILD PLAY GAME?							
DID CHILD ENJOY GAME?							
WAS CHILD ABLE TO SELECT WHICH DIDN'T BELONG ACCORDING TO COLOR?							
COMMENT							

At the end of eight weeks, you have completed the first cycle of the learning unit. Then you should plan to go back to the first game (Sound Cans) and repeat the process. You should note whether or not you feel comfortable with the learning episodes, and whether or not the children can do more than they could the first time. With some of the games, more than one child can play at a time. If you feel comfortable, involve more children at one time.

ADDITIONAL LEARNING EPISODES

On the following pages we have included some additional learning episodes for Color Lotto, the Stacking Squares, and the Table Blocks. These episodes are more difficult, but some of the children will be ready to play them.

Color Lotto Game III

EQUIPMENT: Color lotto board and two sets of squares.

PURPOSE: To reinforce color names and give practice in memory.

Specific Instructions:

Play this game with two or three children.

1. Place the lotto board on the table. Say to the children, *"Look at the colored shapes on the board...Now I'm going to cover them all."*

2. Take a set of the color squares and cover each square on the lotto board so no color shows; keep the other set in front of you.

3. As you cover the squares on the board, say to the children, *"Watch carefully so you will know where the colors are."*

4. Then say, *"Sharon, find the yellow square."* Do not show the child the yellow square.

5. If she remembers where the yellow square is, let her take it off the board and give her the yellow square that you kept in front of you. Say, *"Sharon, you found the yellow square."* Then say, *"Nick, you find the green square."* If the child does not remember where the green square is, say, *"You found the red square. It's Joan's turn. Joan, find the orange square."*

6. Remind the children to watch as the other children turn squares over and to remember where the colors are.

7. Continue the game until all the squares have been found.

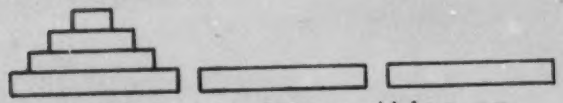
Stacking Squares Game IV

EQUIPMENT: One Stacking Squares set.

PURPOSE: To help the child see patterns and extend them.

Specific Instructions:

1. Take the red squares and stack them with the largest on the bottom and the smallest on top. Then place the largest yellow, green and blue squares on the floor or table and ask the child, *"Where do the other squares go?"*



2. If the child does nothing or places a square in the wrong place, say, *"What goes here?"* (pointing to the largest green square). If he does nothing, stack the green squares and ask again (pointing to the largest blue square), *"What goes here?"* If the child does not understand, play another game dealing with pattern extension.

3. When the child understands, say, *"I am going to make a new pattern."* Make a stack with the largest red square, a next largest blue square, a next to the smallest red square, and the smallest blue square. Start another stack with largest blue square on the bottom and the next to largest red square on top of it and say, *"What color square goes next?"*

4. If the child does not know, put on the next to the smallest blue square and then ask, *"What color square goes on top?"*

5. If the child does complete the second stack, say, *"Make the same kind of stack with the yellow and green squares."* Give him as much time as he wants. If he makes a mistake, point to the red and blue stacks and say, *"The largest square is on the bottom, then the next to the largest is next, the next to the smallest is next and the smallest is on top."* If he still does not see the error, make one correct stack with green and yellow and say, *"You make the last stack."* (He can't be wrong unless he mixes up the sizes.) Say, *"That's right, because you have a green square, then a yellow square, and another green square, and a yellow one. Do you want to play this game again?"* If the answer is yes, change the combination of colors.

Stacking Squares Game V

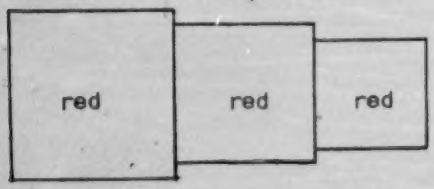
EQUIPMENT: One Stacking Squares set.

PURPOSE: To help a child see patterns and extend them.

Specific Instructions:

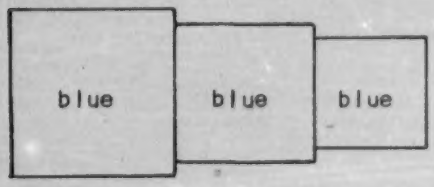
1. Lay out the three largest red squares side-by-side from the largest to the smallest. Have several other squares on the table, including the smallest square; ask, *"Which square comes next?"*

2. If the child does nothing or does not understand the sequence you had in mind, lay out the smallest red square:



and say, *"The smallest red square belongs here."*

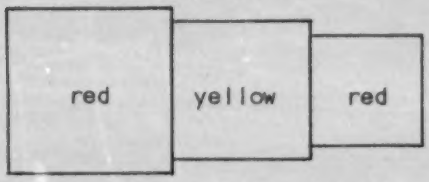
3. Then lay out the three largest blue squares and say, *"Which square comes next?"*



4. If the child is right, say, *"The smallest blue square belongs here."*

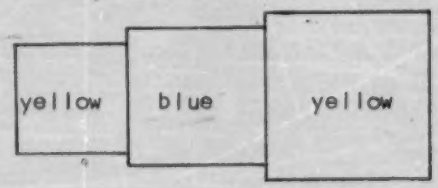
5. Then say to the child, *"Line up the other squares in the same way."*

6. After the child has lined up the squares from largest to the smallest using only one color, play the game using two colors. For example, line up the largest red square, the next largest yellow square, the next smallest red square, and ask, *"Which square comes next?"*



7. If the child does not choose the smallest yellow square, say, *"First, there is the largest red square, then the next largest yellow square, then the next largest yellow square, then the next smallest red square, so the smallest yellow square comes next."*

8. Next, try a small yellow, larger blue, larger yellow, and ask the child, *"Which comes next?"*



9. Ask the child if he can start a pattern for you to finish.

Wooden Table Blocks Game IV

EQUIPMENT: One box of Wooden Table Blocks, including ten sizes of blocks numbered 1 to 10. The largest block is ten times as tall as the smallest. The other blocks are the units between one and ten.

PURPOSE: To help the child learn the idea of equal to by using ideas he already has used (taller, shorter).

Specific Instructions:

1. Take one each of the 3, 5, 7, and 10 blocks and all the 1 blocks. Put them on the floor between the child and you.

2. Stand up the 3 block and say to the child, *"Make a tower out of these blocks* (all the 1s) *that is as tall as this block"* (the 3).

3. If the child builds his tower with three of the 1 blocks, say, *"It takes three of these blocks to make a tower as tall as this one block."*

4. If the child does not build with the 1 blocks so that they are as tall as the 3, put the 3 block next to the ones he has built and say, "Your blocks are shorter than this block. You need to add one more block to your tower to make it as tall as this block."

5. Continue the game using taller blocks (such as the 5, 7, and 10) and asking the child to use the 1 blocks to build towers the same height as each of them.

SECTION B

Step-by-Step Learning Outline

1. You have already completed Section A of Using Toys and Games with Children and done each of the activities (1 through 9) in your classroom. Be sure to play each of the 20 games with children in your classroom, if you haven't already done so.

2. Read "Developing a Healthy Self-Concept" on this page. Explain these notions to the teaching assistant in your classroom.

3. Read Section B and play each of the learning games with children in your classroom.

4. On pages 87-88 of this section, read "How to Use Specific Words" and practice those behaviors in your classroom. Encourage your teaching assistant to begin using specific words also.

5. Help the teaching assistant in your classroom as she learns to play the same games with children. Be sure she can fill out the Observation Sheets so that information on each child is available readily for both of you. Discuss with her each child's accomplishments so that you mutually agree which skills and concepts will need to be emphasized in coming weeks.

6. Make your own observation chart for one of the "supplementary" toys.

7. Get together some scrap materials--fabric, boxes, cardboard, etc., and create your own "learning episode" to be used in the classroom. Ask your instructor to evaluate the game you've invented.

Developing A Healthy Self-Concept

The term "self-concept" is only a symbol, a useful shorthand notation for summing up what a person feels about himself. We say a child has a healthy self-concept, or self-image, when:

1. He likes himself, his family, and his people.

2. He believes what he thinks, says, and does make a difference.

3. He believes he can be successful.

4. He believes he can solve a variety of problems.

5. He has a realistic estimate of his own abilities and limitations.

6. He expresses feelings of pleasure and enjoyment.

What Can We Do?

First, in order to help a child have a more positive view of himself, we must see him as he sees himself, not as we want to see

him, and not as we want or think others see him. The child must be free to reveal himself and not try to be the person he thinks others will approve of. He must feel free and secure in saying "I do not know" or "I do not want to." When we provide an environment which enables the child to explore, to spend the time he wishes at the tasks he enjoys, to express himself without threat, and to find materials of various levels of difficulty so that he can pick those which lead to success, we provide a climate in which he can reveal himself and get to know himself better. Hence, it is an environment for healthy growth. He becomes more and more autonomous as we provide broader opportunities for him to experience success. The taste of success is sweet; success begets success; and success leads to initiative. That is, the child tries his wings; he announces himself as a "person," a "self" to the world.

At this stage of development, he convinces himself that "I am somebody; I can make things happen." When a child moves through and out of this phase of development, he becomes productive. The productive child is the happy child.

Most research indicates:

the more favorably the child feels the teacher perceives him, the more favorably he perceives himself

the more favorably the child feels the teacher perceives him, the better his academic achievement

the more favorably the child feels the teacher perceives him, the better his classroom behavior...

Perceiving (leads to) Behaving (leads to) Being

The way a person views himself is almost wholly determined by the words and actions of others toward him. As he perceives the actions of others, he infers what others think of him, and comes to think of himself in the same terms. A child has not been exposed to enough situations to have developed a "feeling of self." His self-concept is still the one that "significant others" (parents, siblings, teachers, peers) have told him exists. It reflects the perceived expectations of others.

Here are behaviors a teacher can observe in the children in her classroom:

Curiosity

Energy

Interest in things outside the self

Independent actions

Good interaction with peers

Expression of feelings without resorting to tears or temper

Respect for self

Attempt to satisfy own needs

Expression of realistic confidence

Pride in self, possessions, and work products

Flexibility

Desire to create instead of imitate

Attempt to solve what is undertaken

Expression of satisfaction with self or work

Task attention without continual supervision

Credit taking, when due, without embarrassment

Not devastated by failure

Below are listed behavioral symptoms of an unhealthy self-concept. The presence of one or several indicators does not necessarily imply that an unhealthy self-concept does exist. It means only that the teacher should look more carefully at the child in terms of self-concept. Conversely, absence of these behaviors does not imply that one has a healthy self-concept:

Depreciation of self, belongings, or work products

Denial of responsibility for actions

Frequent crying, or other evidence of extreme shifts of emotion

Anxiety symptoms, like stomach aches

Often a discipline problem

Overly upset by failure

Dependency signs, like wanting to be near the teacher more than usual

Tasks are chosen which are consistently too easy or too difficult

Failure to participate, except when urged

Poor performance in front of others

Boastful of self, critical of others; showing off

Extreme conformity

Frequent shyness, distance, awkwardness

Slow to initiate conversation

Personality is the motivating and selecting factor in learning, because it influences retention and utilization of information. We want to send into the world a child who has a wide range of experience and who is able to use what he has learned. And in any learning situation we want all of the child's previous experience operating that will help him assimilate the new experience. But if he brings with him, from past learning, inappropriately negative feelings, then he may shut out those things that cause pain. If he has had to stutter through a reading passage, he will avoid recalling the words that were corrected. Consciously or unconsciously, he will "tune out" that part of his life. Similarly, if he brings with him negative emotional affect, then parts of the new experience may be shut out, and learning, if it takes place at all, will be minimal and distorted.

To create the climate for growth and change, we need to provide the raw material of respect, lik-

ing, experiences of success, and a threat-free environment. Then every child can use his senses, perceptions, and judgment as the tools for interacting with the things and people around him.

Toys as Learning Tools

One of the objectives of this learning program, as with any educational program, is to further the intellectual development in children. The other objective is the development of a healthy self-concept. We feel the two cannot be treated separately in the Responsive Program.

You, as a teacher, must be concerned with the intellectual growth and development of children so it seems important that you consider how toys can be used as tools to reach this goal.

First, what is meant by intellectual growth and development? We feel intellectual growth is a process of learning how to solve problems. Or of "learning how to learn." Learning specific bits of information is not necessarily intellectual growth. For example, Color Lotto is designed to teach color. If the child learns to relate the color red only to the lotto board, this information is useless. However, if in the process of learning the color red on the lotto board, he generalizes to other objects that are red and is able to use the information in a meaningful way, you are seeing intellectual growth. You can say to him, "John, put on your red sweater." He can problem-solve, or eliminate sweaters that are not red, to select the red sweater.

How can toys be used to further intellectual growth? Many teachers and parents think that in order for children to learn, the children must work. Many feel that play is not the way to learn.

But we feel that play can be a constructive and creative way for children to learn; or, if you will--play is children's work.

Notice children when they are playing. They are learning. How do children learn to talk (probably the most difficult skill anyone ever learns) and walk? Was it work? We've watched children learning to walk, falling down, getting up, and having fun doing it. Yet they were learning.

What we are suggesting is that children should and can enjoy learning from toys and games. When you select games and toys to use with young children, ask these three questions:

1. Does the child enjoy playing with the toy?
2. What does he learn from the toy?
3. Is the toy safe and durable?

In the Responsive Program, toys and games are used to help develop competency in three areas that we feel are essential to intellectual development.

1. The senses and perception
   Everything one has learned and everything one will ever learn comes through the senses.

2. Concept information
One needs to be able to form ideas about information received through sense.

3. Language ability
Language is the tool of thought. One needs adequate language to express impressions of the world as he perceives it.

Intellectual development is just one aspect of the value of toys and play. For example, dolls can be very important for self-image and role playing. Bicycles are important for coordination and muscle development.

When you next select a toy for your classroom, it should be more than something just to keep children busy or just to "have fun" with. Instead it should be chosen more with the feeling that "this toy can be an important learning tool."

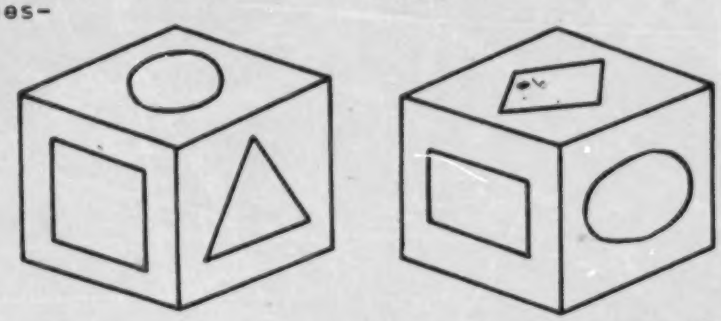
The Geo-Hop Game

Purpose: To help child learn to identify and name shapes. Gives the child added practice in counting.

Enthusiastic involvement in this shapes-recognition game is easy to achieve because the game is played in the children's natural, active style. As they play the game, the children learn to differentiate among shapes and to name each one. At the same time, they practice counting in a very practical way as they count each shape into which they jump.

Back in the classroom, as you talk about the outside-time activities, it is a good idea to raise questions which immediately reinforce the game's shape experience: "Who remembers how many corners a square has? Which shape has only three sides? What is the name of the round shape?"

Preparation: A variation on the traditional game of hopscotch, this one involves geometric shapes instead of numbers. You will need one three-inch-square block (the kind with rounded edges is best for rolling purposes). With colored felt-tip pens or with oil-base paints, draw the shapes (circle, square, triangle, rectangle, diamond, and eclipse or oval) on the sides of the block.



How to Play

I. Outside on the playground, draw three or four large replicas of each of the shapes on the block. Space them several feet apart.

II. Each child (in groups of six to ten) then takes a turn rolling the block and seeing what shape turns up.

III. The player then must jump on all the shapes that are the same as the shape on the block. (Some children may need help from you or the rest of the group in locating the shapes they may have missed.) "How many triangles did you jump on altogether, Richard?" (Ask child to count as he jumps.) "Does anyone see a circle that Melissa missed?" "How many squares do we have? How many rectangles?"

Note: Some children may not be familiar with diamonds or ovals. When you talk about the shapes or when you ask them to count how many are drawn on the ground, be sure to point to the appropriate side of the block. After some discussion and a few jumps, the children will remember the shapes.

My Dog "Sunshine" - A Sign Language Game

Purpose: To help child associate words with actions and to use context clues.

Activity: Tell a story leaving out certain words. Use sign language to give the meaning of the missing words and let the child fill in the missing words.

The story continues: under the fence, up the hill, around the block, etc.

Variation: Play the same game, leaving out action words (e.g., walk, run, skip, jump, hop). Act out the word you are leaving out for the child to guess.

Story	Motion
My dog "Sunshine" walked _____ the bridge	Make <u>over</u> action with your hand.
She ran _____ the hill	Make <u>down</u> action with your hand.

Language Activity - Talk-a-Lotto

Purpose: To help children learn to identify and classify objects.

The name of this game suggests what should be emphasized--lots of talking. Most conventional lottos concentrate on categorizing objects and images rather than on conversation. Children perceive visually the relationship of one picture (or one object) to another. Learning to identify and classify these pictorial images on the basis of similarities and differences is an important reading activity. But in Talk-a-Lotto, your object should be to stimulate discussion about the pictures.

When you ask the children to talk about the various elements in a lotto picture, you need not insist on complete accuracy. Participating in Talk-a-Lotto invites the child to discover the nature and value of description as a means of communication.

The Cards

Several versions of the lotto game are available commercially, but it's more fun and often more useful to make your own. The selection of pictures is the key to the game's value. Gather or draw a gallery of "position cards"--pictures illustrating the placement of an object. The children can help collect magazine pictures, photos, feathers, buttons, etc. All sorts of things that can be glued onto cards, to free you from

the standard lotto images. You will need two of everything. A good size for the game board is 10" x 12" with six equal divisions. The small cards are 4" x 5."

How to Play

I. Give each player his own game board. Every child's board should have a different combination of pictures.

II. One child is selected to be the leader. It is his job to hold up the individual picture cards. (You can be the leader to start the game off.)

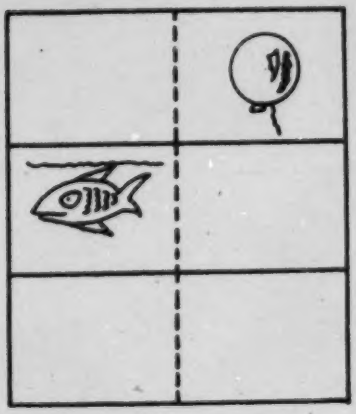
III. Begin the game with the leader holding up one picture card from the deck. If a player sees that it matches one of the pictures on his game board, he claims it and puts it in place on his board.

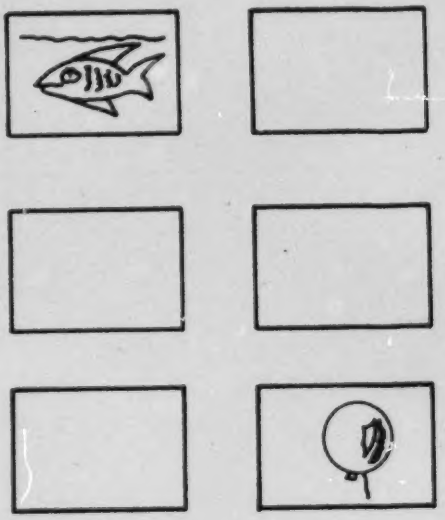
IV. At this point, instead of going right on to the next picture, elicit some descriptive commentary: "What's happening to the ball?" "Where is the bluebird?" "What is he doing?"

V. During the conversation direct attention to as many position words as possible, such as up, down, in, over, under, around, and through.

Examples:

1. "cat walking around the corner"
2. "balloon floating up in the air"
3. "fish under the water"





Tips on Talking with Young Children (or with adults--the art of conversation remains the same)

1. Keep it natural--don't talk the child to death. Too much talk can take the joy and spontaneity out of an experience.

2. Be sure your interest is real. Youngsters are often quicker than adults when it comes to knowing what's phony. Try sharing what really interests you; you may be surprised at how the child responds.

3. Ask questions--real questions. "How did it make you feel--happy or sad?" "Which do you like best?" "What would you do?" "What color do you want?"

4. Don't talk down. Conversation is a person-to-person event. Anything less is bound to feel flat. If the difference in size is a problem, kneel, squat or sit so that you are eye to eye while you talk.

5. Be direct.

Visit a toy store in your area. Identify several toys/games that might be useful in your classroom.

Then use this rating scale to decide if the toy(s) you've picked out would fit the criteria shown here.

Toy Selection Criteria

Minimum Criteria 1-4 Other Criteria 5-10	Toy Meets Criterion (+)	Toy Does Not Meet Criterion-Why Not? (-)
Minimum Criteria 1. Age appropriate (4-5 year-old)		
2. Safe, nontoxic paint, no pieces to swallow; no dangerous sharp points (pencil point)		
3. Not easily broken, sturdy, can be dropped and not broken		
4. Toy can teach one concept or one concept at more than one level (depth)		
Other Criteria 5. Self-correcting; can be played without an adult		
6. Toy can teach different concepts (breadth)		
7. Game or toy can be played with one child		
8. Self-contained--not a lot of pieces to lose		
9. Colorful and exciting to look at		
10. Inexpensive (less than $5.00)		

Check Your Progress

1. A child is "building" with blocks and has asked you to hand him one from a nearby pile. It is unclear to you which one he wants for the blocks are of two different sizes. The clearest thing to do is:

   a. "Do you want the big one or the little one?"

   b. "Which one do you want?"

   c. "Do you want the larger block or the smaller one?"

   d. Say nothing and give him both blocks.

2. Two boys use the blocks as rifles. Before you intervene physically, the responsive procedure is:

   a. "If you don't build with the blocks, you can't play with them."

   b. "Keep the blocks on the floor and build with them" (demonstrate).

   c. "It's not nice to play soldiers; build roads with the blocks." (demonstrate)

   d. "You build with the blocks; only bad people use the blocks for guns."

3. Use of exact and precise language is important because:

   a. children understand you better

   b. adults are language models for children

   c. adults are wiser than children

   d. children expand their language by listening

   1) a, b, c
   2) a, b, d
   3) b, c, d
   4) all of the above
   5) none of the above

4. Which of these rules does not apply in a Responsive Education Program?

   a. The child may change the rules of the game.

   b. Stop the game when the child loses interest.

   c. The child may stop playing when he wishes to.

   d. Stop the game at snack time.

5. Name four points that are included when we say a child has a healthy self-concept.

6. Name four behavioral symptoms of an unhealthy self-concept that can be observed in the classroom.

7. Why should you use specific words to tell about "position" or "action" when you're speaking to a child?

Activity

Choose one of the following activities to demonstrate your competency in using the toys and games.

1. Choose one of the toys you've learned to use in the classroom. Ask a parent if she would like to borrow it over a weekend. Show her how to use the toy at home with her child. If possible, role-play one learning activity with her. Let her act as the mother and you act as the child. When she returns the toy the following week, discuss with her what she has learned.

2. Demonstrate for administrators in your district how toys are used responsively in your classroom.

3. Create a "learning episode" of your own for use with an educational toy or with materials you collect locally. Ask your instructor to evaluate the activity you've invented.

GENERAL INSTRUCTIONS LEARNING GAMES

Before you start each game, be sure to remember these three important points:

A. Ask you child only once each day if he (or she) wishes to play the game.

B. The child may change the rules of the game at any time. You must follow the child's rules if he changes them.

C. You should stop the game when the child seems to lose interest.

Alphabet Board

EQUIPMENT: One flannel board on which the letters of the alphabet are printed, and one set of capital letters.

PURPOSE: To help the child learn the shapes of letters, by matching letters to outlines.

General Instructions:

A. Ask your child only once each day if he wishes to play the game.

B. The child may change the rules of the game at any time. You must follow the child's rules if he changes them.

C. You should stop the game when the child seems to lose interest.

Specific Instructions:

1. Place all the capital letters in front of the child.

2. Pick up the letter which is the first letter of the child's name, for example the letter A, and give it to the child. Say, *"This is capital A. You may put it over the capital letter A on the board."*

3. If the child puts the letter over its printed form, say *"Capital A on capital A."*

4. If the child puts the letter A on another letter, say, *"You have put the capital A on capital H."* Take the letter off, and let the child try again. If he puts the A on another letter a second time, put the A aside, and go on to the next step.

5. Let the child select a letter. Say, *"Now which letter do you want to put on the board?"*

6. When he chooses a letter, name it: *"That letter is the capital D."* Let him place it on the printed D on the board.

7. Continue the game until the child has matched all the letters or no longer wishes to play.

Beginning Matrix Game

EQUIPMENT: Desk Top Set of Attribute Blocks (60 pieces in five shapes, three colors, two sizes, and two thicknesses): an empty box; and the Matrix Game Board, showing a large square divided into nine smaller squares of equal size.

PURPOSE: To encourage your child to guess answers to problems and to use information he gains to make better guesses.

General Instructions:

A. Ask your child only once each day if he wishes to play the game.

B. The child may change the rules of the game at any time. You must follow the child's rules if he changes them.

C. You should stop the game when the child seems to lose interest.

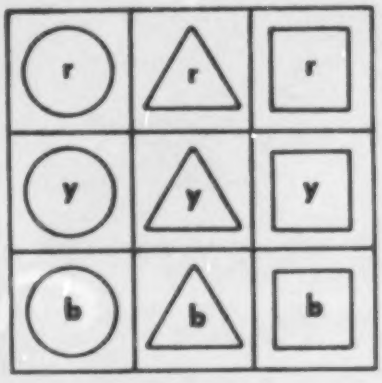
Specific Instructions:

1. Before you show your child the Attribute Blocks, separate all the large, thick triangles, circles, and squares from the rest. (You will have a red, a yellow, and a blue block for each shape.) Only these nine blocks will be used in this game. Put aside the other blocks for now. Put the nine blocks in the box.

2. When your child wants to play the game, keep the box closed. Say, *"I have some things in here. What do you think they are?"* Shake the box so it rattles. Do this several times.

3. If his first guesses are "far out," that is fine. Simply play a mysterious game. Say, *"Let me peek and see if I have one of those."* Then peek and say, *"No, I don't have one."* Shake the box and ask again. After four or five "far out" guesses, you can ask some helpful questions: *"What do you think they are made of?"* or *"What color do you think they are?"*

4. If he guesses one of the colors, say, *"Yes, here's a red one,"* and place it in one of the squares of the matrix. This first block will give him many ideas for other guesses.



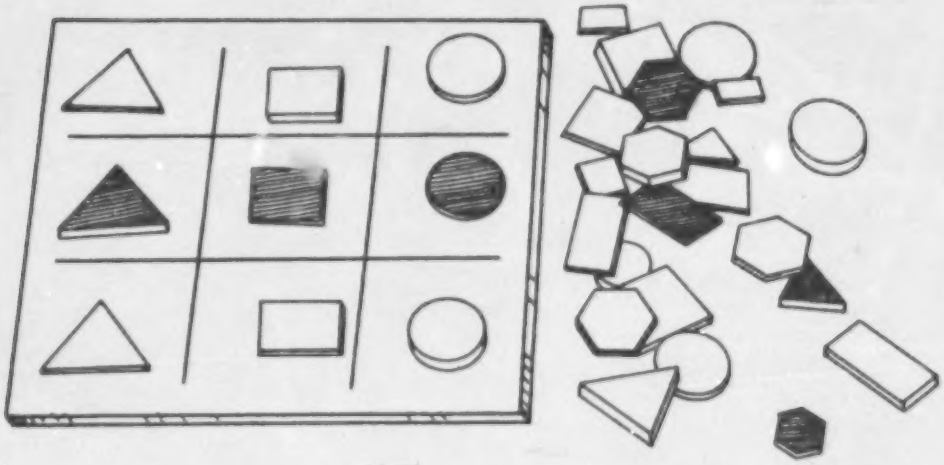
5. As your child guesses more blocks, take them out of the box and place them on the board so that the colors are together in a row in one direction and the shapes are together in a row in the other direction, as in the toy illustration.

6. Say to your child, *"Close your eyes and I will remove one of the blocks."* Remove one of the blocks, hide it, and say, *"Open your eyes and tell me which one of the blocks I picked up."*

7. If he wants to see the block, show it to him. Let him put it back on the matrix. Ask him if he wants to try again or if he wants you to close your eyes. If he wants you to close your eyes, let him remove a block while you guess. Later, ask him to close his eyes while you remove another block. Do not tell him or show him how to find the answer. He will discover it in time.

8. After he succeeds three or four times, turn the board around and play again. This way the colors and shapes change places.

9. Later you can remove all the circles and place the large, thick rectangles or hexagons on the matrix and play the same game.



Coordination Board Game I

EQUIPMENT: One Coordination Board, including eight small wooden shapes: two squares, two circles, two rectangles, and two triangles. The cutout shapes fit matching spaces on the board.

PURPOSE: To help the child identify shapes.

General Instructions:

A. Ask your child only once each day if he wishes to play the game.

B. The child may change the rules of the game at any time. You must follow the child's rules if he changes them.

C. You should stop the game when the child seems to lose interest.

Specific Instructions:

1. Allow the child to play on the floor or table with the game for a while.

2. Remove all the shapes from the board and put them between you and your child.

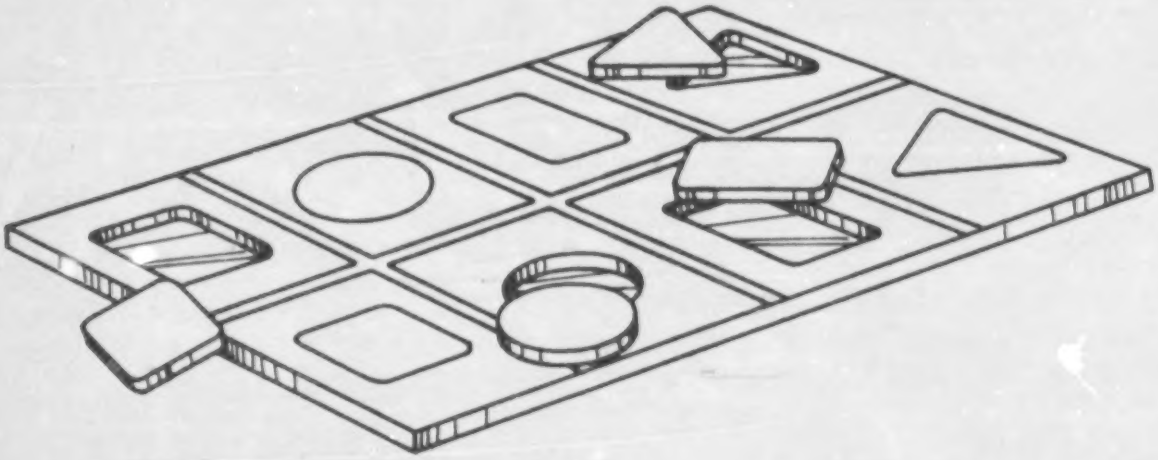
3. Hand the child a circle and say, *"Put the circle in its place on the board."*

4. If he puts it in a different place, say, *"You have put the circle in the square's place."* Remove it from the board and say, *"Put the circle in the circle's place."*

5. If the child puts the circle in the correct place, say, *"Yes, you have put the circle in its place."* (It's all right if the child puts a yellow circle on a brown background and a brown circle on a yellow background.)

6. Hand the child a triangle and say, *"Put the triangle in its place."*

7. Continue the game until the child has put all the shapes on the board.



Coordination Board Game II

EQUIPMENT: One Coordination Board, including eight small wooden shapes: two squares, two circles, two rectangles, and two triangles. The cutout shapes fit into matching spaces on the board.

PURPOSE: To help the child identify shapes.

General Instructions:

A. Ask your child only once each day if he wishes to play the game.

B. The child may change the rules of the game at any time. You must follow the child's rules if he changes them.

C. You should stop the game when the child seems to lose interest.

Specific Instructions:

1. Remove all the shapes from the board.

2. Hand the child a circle and a triangle; put one in each hand.

3. Say, *"Place the triangle on the board."* If he chooses to put the circle on the board, say, *"You have placed the circle on the board. Now put the triangle in its place on the board."*

   If he chooses correctly, say, *"Yes, you have placed the triangle on the board. Now place the circle on the board."*

4. Repeat the game for the square and rectangle.

Coordination Board Game III

EQUIPMENT: One Coordination Board, including eight small wooden shapes: two squares, two circles, two rectangles, and two triangles. The cutout shapes fit into matching spaces on the board.

PURPOSE: To give the child experience in identifying geometric shapes and naming colors.

General Instructions:

A. Ask your child only once each day if he wishes to play the game.

B. The child may change the rules of the game at any time. You must follow the child's rules if he changes them.

C. You should stop the game when the child seems to lose interest.

Specific Instructions:

1. Allow the child to play with the toy a while (five minutes or so); then ask if he would like to play a game.

2. Put all the pieces on the board with each shape matched to the same color background. (Put the red rectangle on the red background; the green rectangle on the green background; the purple square on the purple background; the orange square on the orange background, etc.) Then tell the child to close his eyes. Remove one of the pieces (for example, the yellow circle) and put it in a place where the child is not able to see it.

3. Say, *"Open your eyes; which piece is missing?"* If the child says the *"Yellow circle,"* or *"Circle,"* say, *"Yes, the yellow circle is missing."*

4. If the child gives an answer other than the yellow circle, for example if he says, *"Square,"* point to the squares and say, *"The squares are on the board."* Point to the missing circle's place and say, *"The yellow circle is missing."*

5. Remove another piece, and again ask the child, *"Which piece is missing?"*

6. Continue the game, removing different pieces.

Hundred Peg Board Game I - Patterning

EQUIPMENT: One square board containing 100 holes drilled in straight rows and columns--10 across and 10 down. There are 100 pegs which fit into the holes: 25 red pegs, 25 yellow pegs, 25 green pegs, and 25 blue pegs. Each peg has a large white dot painted on one end.

PURPOSE: To help the child see patterns without being told how to make them.

General Instructions:

A. Ask your child only once each day if he wishes to play the game.

B. The child may change the rules of the game at any time. You must follow the child's rules if he changes them.

C. You should stop the game when the child seems to lose interest.

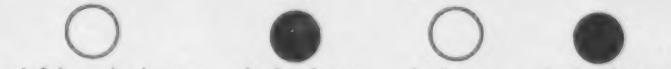
Specific Instructions:

1. Before you begin the game, allow your child to play with the board and pegs by himself for a while. Say nothing, but watch what he does.

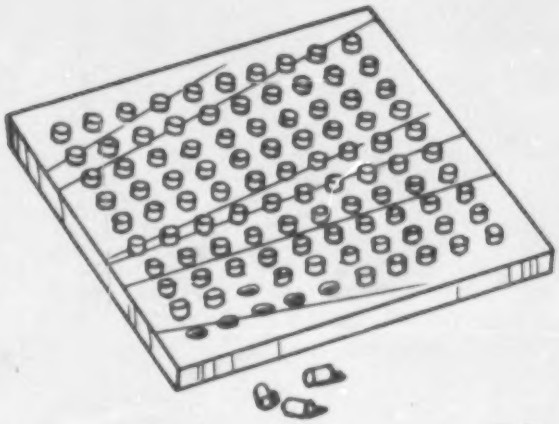
2. Remove the pegs from the board and place the red ones in a group beside your child (push the others aside for now).

3. Say, *"Close your eyes."*

4. While his eyes are closed, place four red pegs in a row in the board. Make a pattern --white dot up, dot down, dot up, dot down. Start from the left side of the board.



white dot up dot down dot up dot down



5. Say, *"All right, open your eyes."* Hand him a red peg and ask, *"Can you make this pattern longer?"* (The idea is that he is to continue your pattern--dot up, dot down, and so on using only the red pegs.) Do not tell him or show him how to place the peg--let him make mistakes or discover the pattern by himself.

6. If he makes the pattern correctly, say, *"Yes, you've made the pattern longer. Do you want me to close my eyes while you make a pattern for me?"*

   If he is unable to follow your pattern, ask, *"Do you want me to close my eyes while you make a pattern for me?"*

7. If he says, *"Yes,"* empty the board and close your eyes.

8. When he has finished putting some pegs in the board, imitate the arrangement he has made, even if it does not seem to be a pattern.

9. Continue to take turns making new patterns. Each time it is your turn to start a pattern, start from the left and keep the pattern simple until he understands by seeing--not by hearing you explain it. Sometimes let him keep his eyes open while you slowly make a new pattern.

Hundred Peg Board Game II - Counting to Ten

EQUIPMENT: One square board containing 100 holes drilled in straight rows and columns--10 across and 10 down. There are 100 pegs which fit into the holes: 25 red pegs, 25 yellow pegs, 25 green pegs, and 25 blue pegs. Each peg has a large white dot painted on one end.

PURPOSE: To help children understand the order of numbers 1 to 10.

General Instructions:

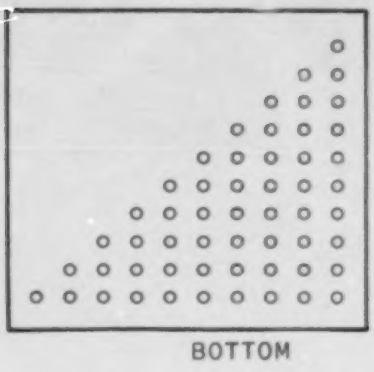
A. Ask your child only once each day if he wishes to play the game.

B. The child may change the rules of the game at any time. You must follow the child's rules if he changes them.

C. You should stop the game when the child seems to lose interest.

Specific Instructions:

1. Place pegs in the board (white dots down) in this arrangement:



2. Point to the column of two pegs and ask, *"How many pegs are in this column?"* When he counts the second peg, say, *"I'll write the numeral 2 on the white dot."* Turn the peg over and write the 2.

3. Ask, *"What other column do you want to count?"* (Help him count from the bottom up.) When he counts the top peg of that column, turn over that peg and write that numeral on the white dot. Continue until all ten columns are counted and the numeral is written on the top peg of each column.

4. Read with your child the numerals you have written from 1 to 10.

5. Turn over all the pegs with numbers.

6. Say, *"Close your eyes."* Then you remove two pegs with numerals and place them (white dot up) in front of him.

7. Say, *"Open your eyes, look at the numerals on these two pegs, and put them back where they belong."*

8. Wait until he finishes putting back the pegs, even if he makes a mistake.

9. Then say, *"I'm going to turn over the numbered pegs starting with the first one. You read the numerals as I turn each one over."*

10. If you come to a peg he placed in the wrong order, wait for him to read it. If he cannot read it correctly or place the peg where it belongs, tell him the number. Set the peg nearby and continue turning over the numbered pegs. When you come to the next mistake, again see if he can read it and place it where it belongs. If not, tell him the number and ask if he can put it where it belongs. If not, place both pegs where they belong and finish turning over the numbered pegs.

11. Count the numbered pegs, 1 to 10.

12. Ask your child if he wants to play again. If so, repeat steps 5-10. If not, let him play with the board in any way he wishes. Try this game again another day.

Hundred Peg Board Game III

EQUIPMENT: One square board containing 100 holes drilled in straight rows and columns--10 across and 10 down. There are 100 pegs which fit into the holes: 25 red pegs, 25 yellow pegs, 25 green pegs, and 25 blue pegs. Each peg has a large white dot painted on one end.

PURPOSE: To help a child learn to count by 2s.

General Instructions:

A. Ask your child only once each day if he wishes to play the game.

B. The child may change the rules of the game at any time. You must follow the child's rules if he changes them.

C. You should stop the game when the child seems to lose interest.

Specific Instructions:

1. With a piece of paper, cover all but the two columns of holes on the left side of the board.

2. Group 12 pegs of one color together; push the other pegs aside for now.

3. Place two pegs (white dots up) in the top holes, first the left hole, then the right hole.

4. Ask your child to count them.

5. After he says, *"one, two,"* say, *"I'll write those numerals on the white dots."* Say the numbers as you write them. (Use a soft, dull lead pencil to avoid scratching the paint.)

6. Then say, *"You may put in more pegs. Count them as you put them in and I will write the numerals on the dots."*

7. When you have finished, count the pegs again, one by one, with your child.

8. Then say, *"Let's count in a different way."*

9. Point to the 2 peg and say, *"This is number __."* Continue until you have counted all the pegs by 2s (2,4,6,8,10,12). Say, *"Now we have counted by 2s."*

10. Then remove some of the even-numbered pegs and ask your child to replace them.

11. Wait until he replaces all the pegs, even if he makes mistakes.

12. When he is finished say, *"Now let's read all the numerals."* If he has made a mistake, he should notice that the numerals don't sound right as he (or you) read them. Let him correct the order of the pegs, if he can. If he cannot, you point to the peg with the correct numeral (for example the 6 peg) and say, *"Here's the 6."* Let him place it where it belongs. Then read all the numerals again.

13. Tell him he may remove some pegs for you to replace. Place them correctly and read with him, *"2,4,6,8,10,12."*

14. Remove all the pegs and let him replace them. Count all the pegs and let him correct himself.

15. Hand him 12 pegs of another color, and ask him to count the pegs. Then ask him to count them by 2s. If he can, go on to Game IV. If not, play Game III another day.

Hundred Peg Board Game IV

EQUIPMENT: One square board containing 100 holes drilled in straight rows and columns--10 across and 10 down. There are 100 pegs which fit into the holes: 25 red pegs, 25 yellow pegs, 25 green pegs, and 25 blue pegs. Each peg has a large white dot painted on one end.

PURPOSE: To help children count by 3s and 4s.

General Instructions:

A. Ask your child only once each day if he wishes to play the game.

B. Your child may change the rules of the game at any time. You must follow the child's rules if he changes them.

C. You should stop the game when the child seems to lose interest.

Specific Instructions:

1. Select six pegs of one color and six of another color.

2. Cover all the columns except the two on the left.

3. Ask your child to help you place the pegs (white dots up) in the columns as in Game III. This time place six of one color in the first column and the other six in the second column.

4. Now count them with him and write the numerals on the white dots. Always count from left to right. When you finish writing the numerals, all the odd numbers should be one color and the even numbers the other color.

5. Say, *"Now the pegs are in 2s."* Point to the pegs and say, *"2,4,6,8,10,12."* Then say, *"Let's make them in 3s."*

6. Move the cover so as to show one more column of holes.

7. Say, *"Now let's count across. One, two,...and what goes in the hole?"* If he says, *"Three,"* tell him he's right and wait for him to place the 3 peg in the empty hole. If he doesn't, show him that the 3 peg goes in the hole.

8. Wait to see if he places the 4 peg where the 3 peg was. If he doesn't, ask, *"What comes*

after three?" When he says, *"Four,"* ask him where the 4 peg should go. Help him only when he needs help. Continue until all the pegs have been placed in 3s. When he finishes all 12, say, *"Now they are in 3s."* Count, *"3,6,9,12."*

9. The next day, set up these same pegs in 3s and ask him to help you make them in 4s. Use the same procedure as in 6, 7, and 8 above.

10. Later, he may want to keep going to 5s, 6s, etc., to 10s. If so, you will need more than the 12 pegs used in this game. Continue to use one color for the odd numbers and another color for the even numbers so your child may have a chance to see the different patterns that result.

Inset Shapes Board Game I

EQUIPMENT: Inset Shapes Board and the 12 shapes.

PURPOSE: To give the child practice in noticing small differences in shape and size.

General Instructions:

A. Ask your child only once each day if he wishes to play the game.

B. The child may change the rules of the game at any time. You must follow the child's rules if he changes them.

C. You should stop the game when the child seems to lose interest.

Specific Instructions:

1. Take all of the pieces out of the board. Give your child the pieces. Put the board between the child and you. Point to one of the spaces (for example, the smallest square) and say, *"Find the shape that fits in this space."*

2. If he chooses a correct shape (for example, the smallest square), say, *"The smallest square fits into this space."* On the other hand, if he chooses an incorrect shape, let him try to fit it into the space. If he sees that it does not fit, do not say anything. If he leaves it in the space, remove the shape from the board. Point to the smallest square and say, *"The smallest square fits into this space."* Use the color of the square to help him identify the correct piece.

3. Continue the game as above, allowing the child to put the shapes in the spaces as you point them out.

Inset Shapes Board Game II

EQUIPMENT: Inset Shapes Board and the 12 shapes.

PURPOSE: To give the child further experience in identifying shape and color.

General Instructions:

A. Ask your child only once each day if he wishes to play the game.

B. The child may change the rules of the game at any time. You must follow the child's rules if he changes them.

C. You should stop the game when the child seems to lose interest.

Specific Instructions:

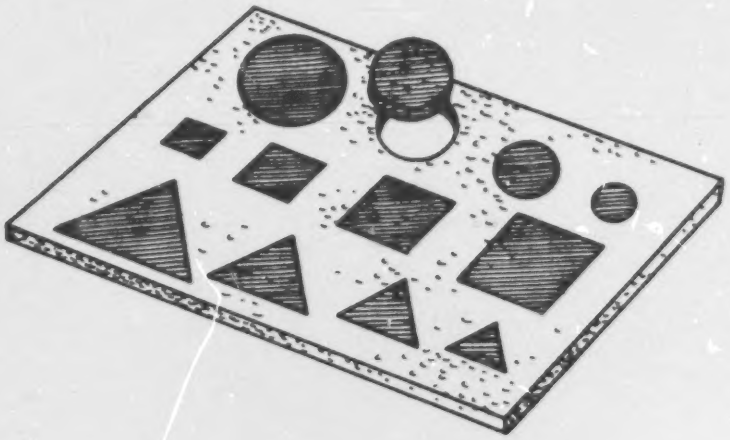
1. Place all shapes in their correct spaces on the board.

2. Then say to the child, *"Take a circle from the board."*

3. Wait to see if the child can identify a circle. If he chooses a circle, respond by saying, *"That is a circle. What color is the circle?"*

4. Continue the game until the child has taken all the shapes from the board.

5. To replace the pieces, switch places. Have the child tell you which shape to put on the board: *"Now you tell me which shape to put on the board."*



Pattern Box

EQUIPMENT: One cardboard Pattern Box and one set of pattern cards. There are three sets of pattern cards (A, B, and C) of increasing difficulty. Set A is for preschool children and older children. Sets B and C are for children above preschool level. Each set contains 20 cards. Ten cards are blank and ten cards are printed on each side with a series of pictures or designs arranged in a pattern. The pattern can be seen as the card is gradually pulled out of the box, one section (or "frame") at a time.

PURPOSE: To help your child learn to solve problems.

General Instructions:

A. Ask your child only once each day if he wishes to play the the game with you.

B. Your child may change the rules of the game at any time. You must follow the child's rules if he changes them.

C. You should stop the game when your child seems to lose interest.

Specific Instructions:

1. Before you begin the game, look through the set of pattern cards to make sure you understand the patterns.

2. Fill the box with one set of pattern cards and ask your child if he wants to play a guessing game. If he does, pull out the top card just far enough to show the first frame of the pattern.

3. Tell your child that he can guess what the next frame looks like, or if he doesn't want to guess, he can pull the card out far enough to show the next frame.

4. Whether your child wants to guess or not, let him pull the card out. He may want only to look at the patterns, instead of trying to guess them. In that case, try the guessing game another day.

5. As soon as your child finishes a card, put it back in the box on the bottom. If the box is only half full, it is easy to peek inside the box to see the next frame. Keeping the box full of cards at all times discourages peeking at the next frame.

6. If your child doesn't want to guess after several days of looking at the patterns:

   a. Try telling your child what you see on the pattern card as he exposes the frames. Then ask him what he thinks comes next. The words you have used to describe the pattern may help him guess the next frame.

   b. Try asking your child a specific question like: *"What color do you think comes next?"* or *"Do you think it is a number or some dots?"* Be careful to ask just a few questions.

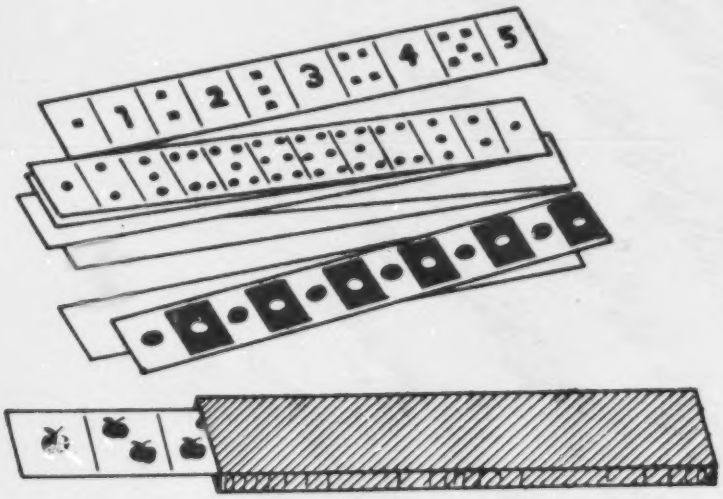
Too many questions can turn this game into a test, and make your child want to stop guessing. Too many questions can also give away the pattern.

7. It is all right if your child predicts only part of the pattern. He may guess the color of the next frame, and ignore everything else, or he may tell you what shape comes next, but not tell you how many there will be. The next time he plays with these cards, you can ask a few questions that will encourage him to predict the pattern more completely. Again, be careful not to ask too many questions. The more your child discovers the patterns by himself, the more he will learn from this game.

8. If your child is not interested in a pattern card, try another. It is not necessary to finish any card that you start.

9. Do not expect your child to be able to give you a reason for his answers. It is harder to explain a pattern than to recognize it with your eyes. If your child does want to talk about why a particular pattern is a pattern, that is fine.

10. Try drawing patterns on the blank cards. Your child may want to make up a pattern for you to guess. Try to guess his pattern, even if it doesn't seem to be a logical one. Your child may want to copy one of the printed pattern cards, or you may want to start a pattern and let him finish it any way he wishes. Set B and Set C each includes one pattern card with suggestions for making patterns. Some of the suggested patterns involve words to fill in the blank spaces in the pattern, and write his words on the pattern card.



Property Blocks

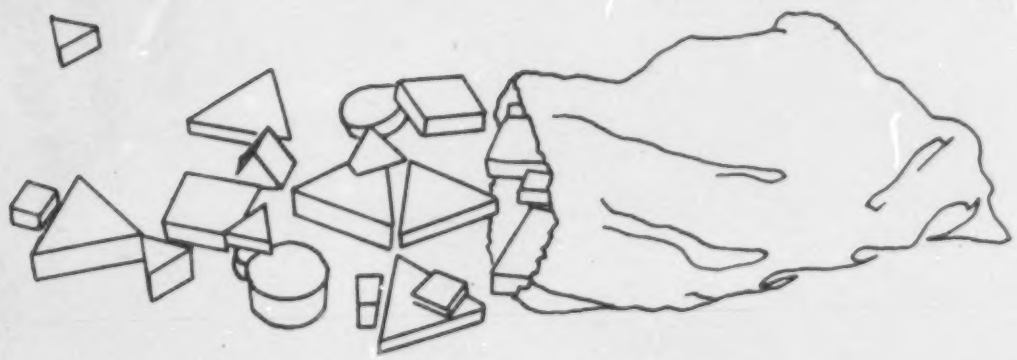
Suggestion: Before playing any of the following games, show the Property Blocks to your child and allow him to play with them in whatever way he wishes. His activity could be building, making pictures or designs, or anything else.

If your child does not object, join him in his activity. Follow his lead and add to what he has already started.

While you are playing with your child, name some of the blocks as he picks them up. For example, say, *"That is a red square"* or *"That is a small blue triangle."*

Encourage your child to do as many different activities or build as many different structures as he can think of.

If your child does not want to do anything with the blocks, start an activity yourself and allow him to join you. If he wants to change the activity that you have begun, let him, and join him in his new game.



Property Blocks Game I

EQUIPMENT: One set of Property Blocks which has 60 blocks of different colors (red, yellow, and blue), shapes (circle, triangle, square, rectangle, and hexagon), sizes (large and small), thicknesses (thick and thin).

PURPOSE: To help your child learn matching and patterning.

General Instructions:

A. Ask your child only once each day if he wishes to play the game.

B. Your child may change the rules of the game at any time. You must follow the child's rules if he changes them.

C. You should stop the game when the child seems to lose interest.

Specific Instructions:

1. Put all the Property Blocks on the floor.

2. Pick out any ten blocks at random and place them between you and your child. Put the other blocks aside.

3. Pick out two blocks that are alike in some way, and tell your child how they are alike. For example, say, *"Both of these blocks are red"* (or large, or thick, or square, or any other way they are alike).

4. Then ask your child to pick out two blocks that are the same in some way and tell you how they are the same. Accept whatever answer he gives, even if it does not seem to make sense to you.

5. If your child cannot tell you how his blocks are alike, tell him a way they are alike. Do not force your child to describe his blocks.

6. Continue taking turns picking pairs until all of the blocks are gone. Then pick out ten more blocks and play in the same way.

Property Blocks Game II

EQUIPMENT: One set of Property Blocks which includes 60 blocks of different colors (red, yellow, and blue), shapes (circle, triangle, square, rectangle, and hexagon), sizes (large and small), and thicknesses (thick and thin).

PURPOSE: To help your child recognize differences in color, shape, size, and thickness.

General Instructions:

A. Ask your child only once each day if he wishes to play the game.

B. Your child may change the rules of the game at any time. You must follow the child's rules if he changes them.

C. You should stop the game when the child seems to lose interest.

Specific Instructions:

1. Put all of the Property Blocks on the floor or table.

2. Pick out ten blocks which are the same in some way. For example, they could all be the same color, or the same shape, or the same size.

3. Ask your child to pick out one of the blocks and hold it up.

4. Then you pick up a block and tell your child one way that it is different from the one he is holding. For example, if your child is holding a red triangle, and you pick up a blue triangle, say, *"This block is a different color."* Or if your child is holding a small block, and you pick up a large one, say, *"This block is a different size."* Or if your child is holding up a circle block, and you pick up a square block, say, *"This block is a different shape."* There will always be at least one difference between any two blocks in the set.

5. Continue to hold the block that you have picked up and ask your child to pick up another block and tell you how it is different from the one you are holding. Then you pick a block and tell your child how it is different from the one he is holding. Continue taking turns in this way until all of the blocks are gone.

6. If your child cannot tell you how his block is different from the one you are holding, tell him a way that it is different and go on playing.

7. When all of the blocks are gone, pick out ten more blocks that are the same in some other way, and continue playing the game until your child seems to lose interest.

Property Blocks Game III

EQUIPMENT: One set of Property Blocks which includes 60 blocks of different colors (red, yellow, and blue), shapes (circle, triangle, square, rectangle, and hexagon), sizes (large and small), and thicknesses (thick and thin).

PURPOSE: To help your child learn matching and patterning.

General Instructions:

A. Ask your child only once each day if he wishes to play the game.

B. Your child may change the rules of the game at any time. You must follow the child's rules if he changes them.

C. You should stop the game when the child seems to lose interest.

Specific Instructions:

1. Put all of the blocks on the floor or table.

2. Ask your child to help you separate the thick blocks from the thin ones, and put them in two groups. Take one group of blocks and give the other to your child.

3. Make a design with your blocks and ask your child to use his blocks to copy your design.

4. Add blocks to your design, one at a time, in order to give your child time to find the block he needs and put it into position in his design.

5. When you finish your design, or when your child seems to lose interest in it, let him make a design while you follow what he is doing.

Property Blocks Game IV - What's Missing

EQUIPMENT: All of the thick circles, squares and triangles in the Property Blocks set (18 blocks).

PURPOSE: To encourage the use of memory and logic in solving problems.

General Instructions:

A. Ask your child only once each day if he wishes to play the game.

B. Your child may change the rules

of the game at any time. You must follow your child's rules if he changes them.

C. You should stop the game when your child seems to lose interest.

Specific Instructions:

1. Pick out all of the thick circles, squares, and triangles, and put the other blocks aside.

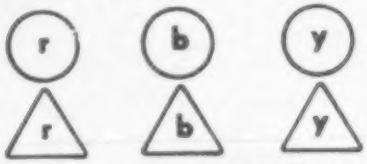
2. From these 18 blocks, pick out any six blocks that you think go together in some way. Some suggestions are:

   a. All the circles:

   b. All the red blocks:

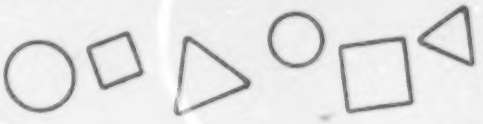
   c. All the large triangles and small squares:

   d. All the large circles and large triangles:



   You may use these suggestions or any other combinations that you like.

3. Lay these six blocks out on the floor or table between you and your child, and mix them up so that they are not in any order.



4. Ask your child to close his eyes; then take away one block (for example, the small red circle). Now ask your child to open his eyes and guess which block is missing. Show your child the block as soon as he guesses, whether he is right or wrong, and say, *"It's the small red circle."*

5. If your child does not make guesses, you can ask a question like: *"What color* (or shape or size) *do you think it is?"* If he still does not guess, show him the block and put it back with the other eight blocks. Then close your eyes and let your child take away one block, and you try to guess which one is missing.

6. After you have played a few times with one group of blocks, let your child pick out a different combination of nine blocks, and play the same game. Play with the group of blocks that he picks even though you may not think they go together.

7. Take turns picking groups of blocks and guessing which block is missing, until your child loses interest in the game.

Spinner Board Game I

EQUIPMENT: One Spinner Board and arrow; one Spinner Card with numbers printed on it; and a quantity of marking chips.

PURPOSE: To help your child practice number recognition.

General Instructions:

A. Ask your child only once each day if he wishes to play a game with you.

B. Your child may change the rules of the game at any time. You must follow the child's rules if he changes them.

C. You should stop the game when your child seems to lose interest.

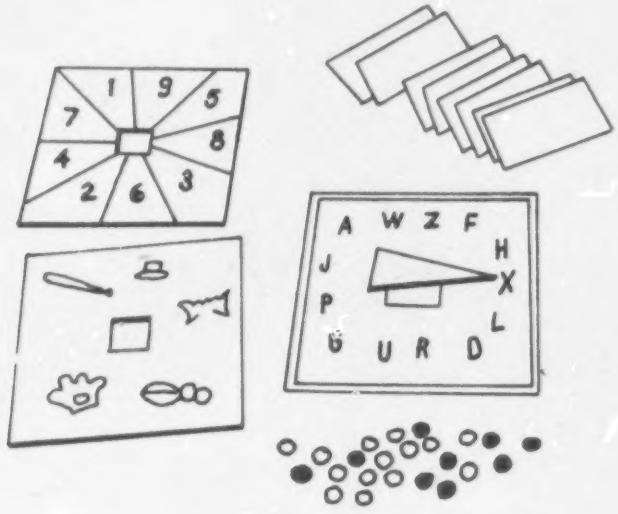
Specific Instructions:

1. Put the Spinner Card with numbers on the Spinner Board.

2. Explain to your child that the spinner arrow will show how many of the chips can be collected each turn. When the arrow stops at a numeral, that number of chips can be collected from the bag.

3. For example, if your child spins the arrow, and it points to the numeral 5 when it stops, then he can collect five chips from the bag.

4. Take turns spinning the arrow and collecting chips until there are no more chips in the bag.



Spinner Board Game II

EQUIPMENT: One Spinner Board with arrow; one Spinner Card with capital letters printed on it; 26 small cards with letters printed on them. Each card has a capital letter on one side and the corresponding lowercase letter on the other side.

PURPOSE: To help your child practice letter recognition.

General Instructions:

A. Ask your child only once each day if he wishes to play the game with you.

B. Your child may change the rules of the game at any time. You must follow the child's rules if he changes them.

C. You should stop the game when your child seems to lose interest.

Specific Instructions:

1. Put the Spinner Card with letters on the Spinner Board. Pick out the small cards that match the letters on the Spinner Card.

2. Spread out the small cards on the table with the capital letters face up and the lowercase letters face down.

3. Explain to your child that the spinner arrow will show which small card can be picked up each turn. When the arrow points to a capital letter on the Spinner Card, the small card showing that same letter can be collected.

4. For example, if your child spins the arrow and it points to the letter A when it stops, then he can collect the small card with "A" printed on it.

5. Take turns spinning the arrow and collecting the small cards until they are all gone.

6. If you want to make the game harder, turn the small cards over so that the lowercase letters are face up and the capital letters are face down. Play the game in the same way.

Spinner Board Game III

EQUIPMENT: One Spinner Board and arrow; one Spinner Card with pictures printed on both sides. Each picture represents a different category. The categories are: dogs, people, flowers, trees, sandwiches, chairs, birds, cars, balls, trucks, cards, shoes, hats, fish, butterflies, and leaves. One set of 32 small cards with pictures printed on them. There are 16 pairs of cards: two dogs, two people, etc. Each pair fits in one category that is shown on the Spinner Card.

PURPOSE: To help your child practice recognition of categories.

General Instructions:

A. Ask your child only once each day if he wishes to play the game.

B. Your child may change the rules of the game at any time. You must follow the child's rules if he changes them.

C. You should stop the game when the child seems to lose interest.

Specific Instructions:

1. Put the Spinner Card with pictures on the Spinner Board. Pick out the eight pairs of small cards that fit the categories shown on that side of the Spinner Card. For example, if the Spinner Card has a picture of a dog, pick out the two small cards that show dogs.

2. Put the 16 small cards which you have selected on the table and mix them around so that the cards are not in any order.

3. Explain to your child that the spinner arrow will show which small card can be picked up each turn. When the arrow points to an object on the Spinner Card, a small card that shows the same kind of object can be collected.

4. For example, if your child spins the arrow, and it points to the picture of a dog, say, *"See if you can find a small card that shows the same kind of thing."*

5. If your child does not pick up a small card that shows a dog, say, *"See if you can find a card that shows a dog."*

6. When your child finds the right card, point to the picture of a dog on the Spinner Card and say to your child, *"Your card and this picture show the same kind of thing because they both show a dog."*

7. Take turns spinning the arrow and collecting one small card at a time until all the small cards have been collected.

Spinner Board Game IV - Making Your Own Spinner Game

EQUIPMENT: One Spinner Board and arrow and one blank Spinner Card.

PURPOSE: To make a Spinner Game that you think your child would like.

General Instructions:

A. Ask your child only once each day if he wishes to play the game.

B. Your child may change the rules of the game at any time. You must follow the child's rules if he changes them.

C. You should stop the game when the child seems to lose interest.

Specific Instructions:

1. To help your child practice color recognition:

   a. Divide the Spinner Card into several parts and color each part a different color.

   b. Put a dozen or more common objects from around the house next to the Spinner Board.

   c. When the arrow points to a color, you can collect an object that has that color anywhere on it.

   d. Instead of using real objects, use magazine pictures. When the arrow points to a color, you can collect a picture that has that color in it.

2. To help your child practice classifying:

   a. Instead of using the small cards for Spinner Game III, cut out magazine pictures that fit in the categories on the Spinner Card with pictures. Let your child help you find the magazine pictures.

   b. Use your magazine pictures to play Spinner Game III.

HOW TO USE SPECIFIC WORDS

Use Specific Words to Tell About Position

You should always try to show and tell clearly where something is located or when something will happen. The words you choose and the way you put the words together can help your child learn more quickly. When you talk about the location of something or the time of an event, try to use statements like these:

Say: *"The blocks go in the box below the window."*
Instead of: "They go over there."

Say: *"The puzzle piece is on the floor under your chair."*
Instead of: "There it is."

Say: *"The pegs are on the bottom shelf beside the puzzles."*
Instead of: "Right over there."

Say: *"We will go outside at 10 o'clock."*
Instead of: "Later on."

Use Specific Words to Tell About Action

Say: *"Robert skipped down the walk."*
Instead of: "Robert went down the walk."

Say: *"The cat is chasing the bird."*
Instead of: "The cat is after the bird."

Say: *"The horse is galloping."*
Instead of: "The horse is running."

Say: *"Wanda is walking slowly."*
Instead of: "Wanda is walking."

Say: *"The sun was shining brightly this morning."*
Instead of: "The sun was bright."

Use Specific Words to Tell About Things

You should always try to show and tell clearly the kinds of things you are talking about. Some words tell much more about things than other words do. If you use the words "This" or "That" or "These" or "Those" all alone, you don't give as much information as you could. Here are some suggestions:

Say: *"This ball has a round shape."*
Instead of: "This is a circle."

Say: *"May I have the longest block?"*
Instead of: "Don't hurt yourself."

Say: *"The long, thin hand and the short, broad hand of the clock."*
Instead of: "The big and little hands of the clock."

Say: *"This sandpaper is rough; the board is smooth."*
Instead of: "This is rough; this is smooth."

Say: *"Do you want some more yellow paper?"*
Instead of: "Do you want some more yellow?"

Say: *"That animal is a rabbit."*

Instead of: "That is a rabbit."

Use Specific Words that Help to Explain Ideas

When you are talking about "things," you can add words that will help make your ideas clear. For example, you can say to your child, "This is red in color," or "This color is red"--instead of "This is red." Or you can say, "This coat is gray in color," if your child does not yet know that "Gray" is a color. Here are some more samples:

Say: *"This has a rough texture."*
Instead of: "This is rough."

Say: *"Feel the skin of this fruit."*
Instead of: "Feel the skin."

Say: *"Yes, the blocks are all the same color, red."*
Instead of: "Yes, the blocks are all the same." (or "They match.")

Say: *"The handle of the saw is cracked."*
Instead of: "The handle is cracked."

Use Specific Words to Give Instructions

You should try to say exactly what you want your child to do. Don't just give hints. Be sure the child knows clearly what you expect. Don't use words that could be understood in several different ways. And try not to use "Don't" in telling the child how to act. Here are some ideas:

Say: *"Keep the paper on the table."*
Instead of: "We don't put paper in our mouths, do we?"

Say: *"You have some blocks. You keep these blocks and let him use the others."*
Instead of: "Wouldn't you like to share your blocks with him?"

Say: *"It is time to go inside."*
Instead of: "Don't you think it's time to go in now?"

Say: *"Hold on to the railing with both hands."*
Instead of: "Be careful."

Say: *"Run around the flowers instead of through them."*
Instead of: "Play nicely."

Say *"You push the table and I'll pull it."*
Instead of: "Don't hurt yourself."

Say: *"Walk where the sidewalk is dry."*
Instead of: "Don't get wet."

Say: *"Stay on the floor."*
Instead of: "Don't climb on the shelves."

Part II

Introduction to Part II

This section of the learning unit offers you practice in the use of some <u>new</u> games that you can play with some familiar toys for very young children (sound cans, stacking squares, etc.). It also introduces you to some brand-new toys, games and activities (like the Phonogram Matrix) that will help you in your work with <u>older</u> children (ages 6-9).

Here is a diagram to show you which toys and games are most likely to be suitable for children of different ages:

Toy/Game	Children's Ages	
	Younger	Older
Sound Cans	x	
Stacking Squares	x	
Table Blocks*	x	x
Discovery Games*	x	x
Rubber Stamps*	x	x
Pattern Games*	x	x
Logic Blocks*	x	x
Sequence Games*		x
Phonogram Matrix Games		x

You should plan to try each toy or activity with another adult <u>before</u> you use it in a classroom with children. Earlier in this learning unit you learned about role-playing. Choose an adult partner for the practice session. One of you acts as a teacher or teaching assistant; the other plays the part of a young child. Go through the full activity responsively. Then, for the next activity that uses the same toy, change roles--the "adult" becomes the "child" and vice versa. Be sure you fully understand and are comfortable with each toy or game before you take it into a classroom.

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*Use easier activities with younger children, and harder ones with older children. See instructions for each toy.

Materials

For this part of the learning unit, you will need:

A. One complete set of each of nine toys:

Sound Cans (with materials to put inside), page 91

Stacking Squares, page 101

Table Blocks, page 111

Discovery Games (Card decks B to F), page 129

Rubber Stamps and Stamp Pad, page 153

Pattern Games (set of cards with homemade lids), page 171

Logic Blocks (with bag), page 195

Sequence Games (with homemade "sleeve" container), page 217

Phonogram Matrix Games, page 233

B. A copy of this handbook entitled Using Toys and Games with Children.

Role of the Learner

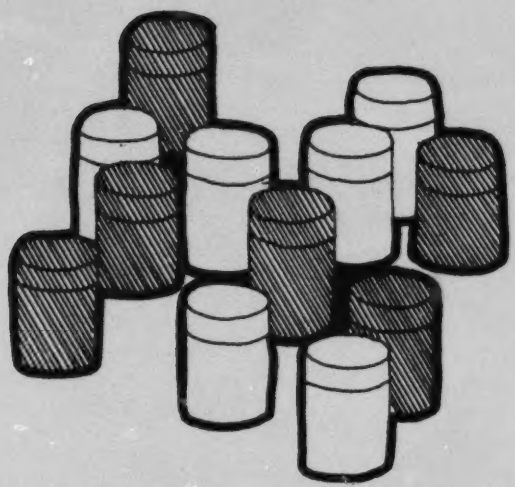
An instructor/coordinator will be available to make suggestions, offer support and advice, and help you evaluate your progress. The instructor will also help you find time for role-playing practice with another adult learner for each of the toys and the accompanying activities.

Two short films will be shown during the time you are learning to use these toys and games responsively. They are:

"Yes Is a Growing Word"
"Discovery Is What Happens"

Together they will suggest to you some of the basic ideas that help to make the educational process responsive to the needs and interests of young children.

SOUND CANS



The Sound Cans consist of twelve cans that are filled with common materials. You can use rice, sugar, pennies, oatmeal, flour, paper clips, beans, sand, erasers, cream of wheat, macaroni, water, or anything else that makes an interesting sound when the can is shaken. Each material that is chosen should be used to fill two cans. For example, if you want to use water, you should fill two cans with water. When all twelve cans are filled in this way, they will form six matching pairs.

Playing with the Sound Cans involves two kinds of activities. The first is guessing what is inside a can by shaking it and listening to the sound it makes ("Guessing Game"). The second is comparing the sounds made by several cans ("Matching Game," "More or Less," and "Odd Man Out"). Both these activities--identifying a hidden object and matching things--occur frequently in the spontaneous play of young children and are very appealing to them.

Trying to guess what is inside the can is a game of great variety. Many different objects can be tried; each one is like a new game. There is suspense in trying to figure out what is inside the can. It is not even necessary to use the cans to play the game. A child can close his eyes and try to identify all kinds of sounds that an adult might make.

The emphasis in a matching game is different. What is in the cans is not so important. The importance of the activity lies in comparing two sounds and making a correct judgment. Only a few kinds of judgments can be made about the sounds. Do they match? Is one sound higher pitched

than the other? Does the sound indicate which can has more objects in it? The variety of games is limited. A matching game is also less flexible than a guessing game. It is difficult to play without the cans or some equivalent materials.

A matching game is a controlled situation in which one of two answers is correct. Either the sounds match or they do not. With practice a child can learn to get the right answer most of the time, even if the contents of the cans are changed. Whenever the contents of the cans are changed in a guessing game, however, it is very hard to get the right answer because they could contain any of dozens of different objects and materials. Practice does not necessarily help a child get more accurate answers.

You may feel more comfortable with a matching game. When the child learns how to get the right answer, you have evidence that he is learning. A child can learn just as much, however, by making reasonable, but incorrect, guesses in a guessing game. Both ways of playing involve the same problem-solving process: careful listening, comparing sounds, making a reasonable guess or hypothesis, and finding out whether the hypothesis is correct by looking in the cans. In a matching game, a child solves a relatively simple problem, comparing two sounds at the same time. In a guessing game he compares the sound of a can with many other sounds he has heard in the past. It is not surprising that such a difficult problem is not often solved correctly.

A younger child usually prefers a guessing game. It is more interesting to him than a matching game. He is not necessarily upset by his mistakes because he feels more like an equal with the adult. When the adult takes a turn trying to guess what is in a can, she makes mistakes, too. The child realizes that in a guessing game, mistakes are to be expected.

In a matching game a child may feel that all the mistakes will be his. An adult can compensate for this feeling of inequality by occasionally making intentional mistakes. She can also encourage a child to discover his own mistakes by checking inside the cans. Instead of telling him he is wrong, or urging him to try again (which is just another way of telling him he is wrong), the adult can simply say, "Let's look inside and see."

Before playing any games with the Sound Cans, a child should be given plenty of time to experiment with different objects and materials, putting them in the cans and listening to the sounds that are created. A good way for an adult to introduce a game is to take the role of the person who guesses. The child can fill the cans and the adult can guess what is inside, or the child can shake one can and the adult can try to find the matching sound. After the child understands the game, he can take a turn being the person who guesses. Some children may want the adult to do all the guessing, thus indicating that they are worried about making mistakes. A child can learn about sounds even when the adult guesses, and perhaps he will develop more confidence after several days of playing.

HOW TO PLAY WITH THE SOUND CANS

Guessing Game

Ask a child to pick up a can and shake it. Tell him what you think is inside. Then let him open the can to see if you are right. Now you shake a can for the child to guess. Sometimes the child may not want to take a turn, but will prefer that you do all the guessing. Play with him in the way he likes. He can learn from your guessing, and he might want to guess later when he is more familiar with what the cans contain.

HOW TO PLAY WITH THE SOUND CANS

Matching Game

Pick up one can and shake it. Then shake the other cans, one at a time, until you find one that sounds the same. Open the cans to see if you are right. Ask the child if she would like to find two cans that sound exactly alike. If she wants to play, take turns finding cans that match. The child may want to take several turns in a row. If she shows this much interest, let her take as many turns as she wants.

If the child gets tired of this game, you can later try playing again with different contents. If you want to make the game a little harder, you can put things in the cans that make similar sounds. For example, oatmeal, rice, sugar, beans, and flour.

I'M GOING TO FIND ANOTHER CAN THAT SOUNDS JUST LIKE THIS ONE.
NO, THESE SOUND DIFFERENT.
HOW ABOUT THIS ONE?
DO THESE CANS SOUND THE SAME?
YES.
LET'S LOOK INSIDE AND SEE IF WE'RE RIGHT.
I BET IT'S RICE!

HOW TO PLAY WITH THE SOUND CANS

Odd Man Out

For this game you need only three cans; two that sound the same and one that sounds different. Shake the cans and pick out the one that sounds different from the other two. Then open the cans and look inside to see if you have found the "odd man." Try to take turns with the child. Let her set up the problem for you, even if she changes the rules and gives you three cans that all sound fifferent. If this happens, try guessing what is inside the cans.

THESE TWO CANS SOUND THE SAME.
BUT THIS CAN SOUNDS DIFFERENT.
WATCH CLOSELY NOW, I'M GOING TO MIX THEM UP.
NOW WHERE IS THE CAN THAT SOUNDS DIFFERENT?

HOW TO PLAY WITH THE SOUND CANS

More or Less

This sound game involves numbers. Take two sound cans and some solid objects to put inside them, like beans, pennies or macaroni. Put one bean in one can and several beans (5-10) in the other; ask the child to shake the cans and guess which can has the most in it. After he guesses, open the cans and count the beans. Then let the child fill the cans for you to guess. Sometimes it is very hard to tell the difference between the cans, but the child may still enjoy guessing which one has more, and then counting the beans.

OTHER SOUND ACTIVITIES

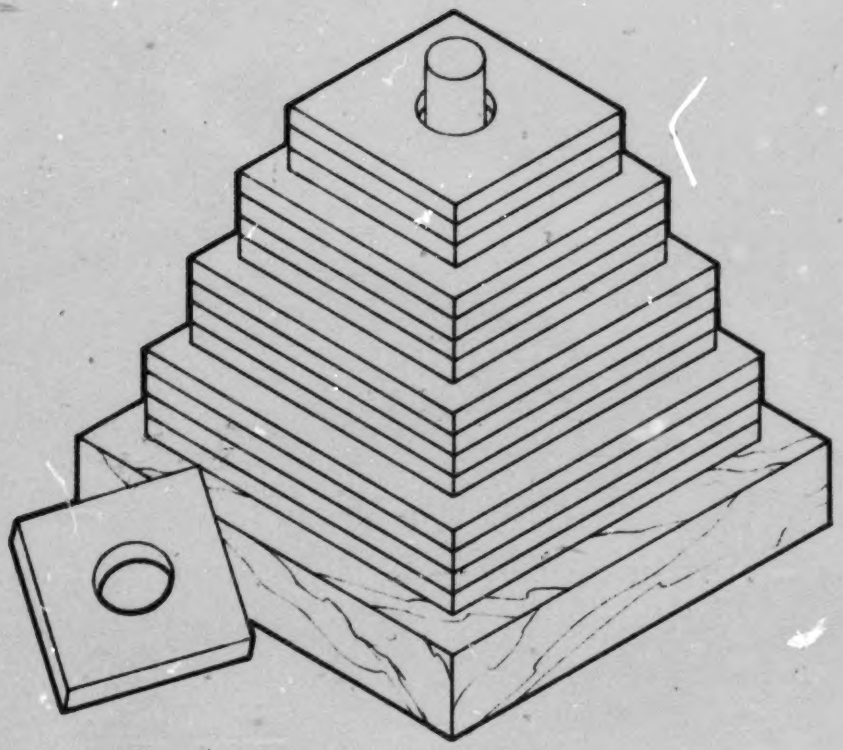
Blindfold Game

It's also fun to identify sounds without using the sound cans. Use a blindfold or ask a child to turn his head or cover his eyes while you make a noise for him to guess. You can switch a light switch on and off, rub your hands together, tear or rumple a piece of paper, zip a zipper, pour water from one glass to another, snap a snap, close a pocketbook clasp, click your teeth together, or anything else that makes a noise. Even putting on a jacket or untying a shoe makes a distinct sound. If the child cannot identify the sound you are making, he can open his eyes to see what it is. After you have tried a few sounds, close your eyes and let the child make a sound for you to guess.

Listening Walk

If a child seems to be interested in sound games, you might want to take a listening walk with him. Go for a walk in the neighborhood and listen very carefully to all of the different sounds. Try to see how many different sounds you can hear and talk about them with the child.

STACKING SQUARES



The Purpose of the Stacking Squares

The central post of the Stacking Squares is cut in such a way that all the squares will fit on it only if they are stacked according to size, with the largest on the bottom and the smallest on the top. To stack all the squares on the post, a person must sort the squares in two ways. First, he must group together squares that are the same size; second, he must arrange the four sizes in order, from the largest to the smallest. The purpose of the Stacking Squares is to encourage a younger child to discover for himself how to sort the squares in these two ways. In the process of stacking the squares on the post, he will learn about the concepts of "same size," "different size," "larger," and "smaller." He may also begin to understand how to arrange objects in order according to size.

You Should Allow Free Exploration

When a young child first plays with the Stacking Squares, he is not likely to sort the squares before stacking them on the post. He may start with the largest squares, or he may start with some other size. He may put one or two large squares on the bottom and then move to another size. A great variety of mistakes are possible. However, through trial and error a child can eventually discover how to fit all sixteen squares on the post.

You may feel the urge to teach a child how to stack the squares correctly. But it is better for the adult to allow the child to discover the solution for himself through free exploration.

A child is likely to learn more about size relationships if he discovers the solution for himself. He is more involved in the process of learning because he is defining the problem as well as solving it. If several squares are stacked in the wrong order, he forms his own theory about what is wrong and how the difficulty might be corrected. Instead of having each mistake corrected as soon as it is made, he is allowed to see the consequences of a mistake. In this way he is more likely to understand why it was a mistake.

For example, suppose a child places one of the largest squares in the wrong position on the post. The largest squares will fit anywhere on the post, but they should be stacked on the bottom. If the child makes such a mistake, he will discover that there is not enough space on the post for the last square and that there is an empty space at the bottom of the stack of squares. By repeating this error enough times, he will eventually learn why all four of the largest squares must be stacked on the bottom of the post. On the other hand, if an adult teaches a child to place the four largest squares on the bottom of the post by immediately correcting him every time he makes a mistake, the child will lose the opportunity to learn from his mistakes. He will not define the problem for himself, which is a necessary step in understanding the solution to the Stacking Squares.

Discovering the solution also helps a child feel more confident in his learning ability. If the adult shows him how to stack the squares,

she has taken away an opportunity for him to develop this confidence. Her action subtly undermines his confidence by implying that he is not able to discover the solution for himself.

Some children may not be interested in the problem of the Stacking Squares. Showing such a child how to stack the squares pushes him into learning concepts in which he is not interested at that time. To some extent the child may associate learning with unpleasant or boring experiences; then it will be harder for the adult to help the child learn in the future. Concepts of size are learned in many ways, so an adult should not place too much emphasis on learning how to stack the squares.

There are indirect ways you can support a child's attempts to solve the problem of the Stacking Squares. As in any free-exploration experience, you can talk with the child as he plays, and occasionally you can describe what is happening. For example, when the child puts on the post two squares that are identical in size, you might say, "Those two squares are the same size." Or when the child is trying to force a small square to fit on the bottom of the post, you might say, "I think the hole in that square is just too small." If the child has stacked most of the squares correctly, but has left several open spaces on the post, you might say something like, "I see a little gap right here; maybe a square fits in there."

Games with the Stacking Squares

Four or more games can be played with the toy. "Mine's Bigger" is a game that does not involve stacking the squares on the post. The purpose

of the game is to create an atmosphere in which it is natural and spontaneous for a child to decide which of two squares is larger. To start the game, the adult and the child each fills a bag with eight squares, two of each size. Each person takes one square out of the bag, and the person with the larger square collects both squares. This procedure is repeated until all eight squares have been removed from both bags. It does not matter if a child looks in his bag before removing a square. If he chooses to use his largest squares at first, he will have only small ones left at the end. The rules of the game can be changed so that the person with the smaller square, rather than the larger square, collects the squares.

"Dropping Squares" is a simple game that is designed to give a child a hint about how to stack the squares correctly. The idea of the game is to drop a pile of four or more squares on the post. If the pile of squares is arranged with the larger squares on the bottom and the smaller squares on top, the squares will distribute themselves in an interesting pattern on the post when dropped. If they are not in this order, the squares will tend to remain in a pile at the top of the post when dropped.

The other two games are memory games; they involve making patterns with the squares. In the "Camera Game", a child (or adult) tries to memorize a pattern of squares stacked on the post. In the game "What's Wrong?", a child tries to figure out which two squares in a pattern have been switched.

When it is the adult's turn to start either of these games, she can make a logical pattern for the child to memorize. In this way, the child gradually becomes familiar with logical patterns without being required to make them himself. Making a logical pattern with the squares requires mathematical skills that a younger child is just beginning to develop. Therefore, when it is his turn to set up either of these games, he probably will make a random pattern. Even if he can make a simple logical pattern, such as four squares that are the same color or the same size, he may think it is too easy for the adult to memorize. Gradually, as the child becomes more interested in the logical patterns that the adult is making, he may want to make one himself.

HOW TO PLAY WITH THE STACKING SQUARES

Mine's Bigger

The object of the game is to help a child understand words like "bigger," "smaller," and "same size."

1. Find two paper sacks or cloth bags. Let the child help you put half of the squares in each sack.

2. To start the game, each person pulls one square out of his bag. Whoever has the bigger square collects both squares. If they are the same size, each person keeps his own square.

3. Continue playing in the same way until all eight squares have been removed from each bag.

4. As you play, call attention to the size by placing one square on top of the other each time and by using words like "bigger," "smaller," and "same size."

DIVIDE THE BLOCKS AND PUT THEM INTO TWO BAGS.
NOW TAKE ONE SQUARE OUT OF YOUR BAG.
YOURS IS BIGGER, SO YOU GET TO TAKE MY SQUARE.
IF THE SQUARES ARE THE SAME SIZE, EACH PERSON KEEPS HIS OR HER SQUARE.
CONTINUE PLAYING IN THE SAME WAY UNTIL ALL THE SQUARES HAVE BEEN REMOVED FROM THE BAG.
REMEMBER TO USE WORDS LIKE "BIGGER" "SMALLER" AND "SAME SIZE" AS YOU PLAY.

Dropping Squares

The object of this game is to give a child a hint about how to stack the squares on the post.

1. Make a stack of three or four squares. Put the larger squares on the bottom of the stack, and the smaller squares on top.

2. Hold the stack of squares slightly above the stacking post and drop them. The larger squares will fall to the bottom of the post; the smaller squares will stay near the top.

3. If the child is interested in this idea, he will probably want to make a stack and drop it on the post.

Camera Game

The object of this game is to help a child become familiar with patterns that can be made with the squares.

1. Ask a child if he wants to pretend he is a camera. If he does, tell him to close his eyes. Put several squares on the post in a pattern such as three red squares of different sizes, three large squares of different colors, etc.

2. Ask the child to open his eyes, look at the stacking post and take a picture in his head of the stacking post.

3. Then ask him to close his eyes again. Remove the squares from the stacking post and mix them up with the other squares on the floor.

4. Tell the child to open his eyes and "develop the picture." Explain that you want him to make the stacking post look just the way it did before.

5. Let the child take a turn making a pattern for you to "photograph."

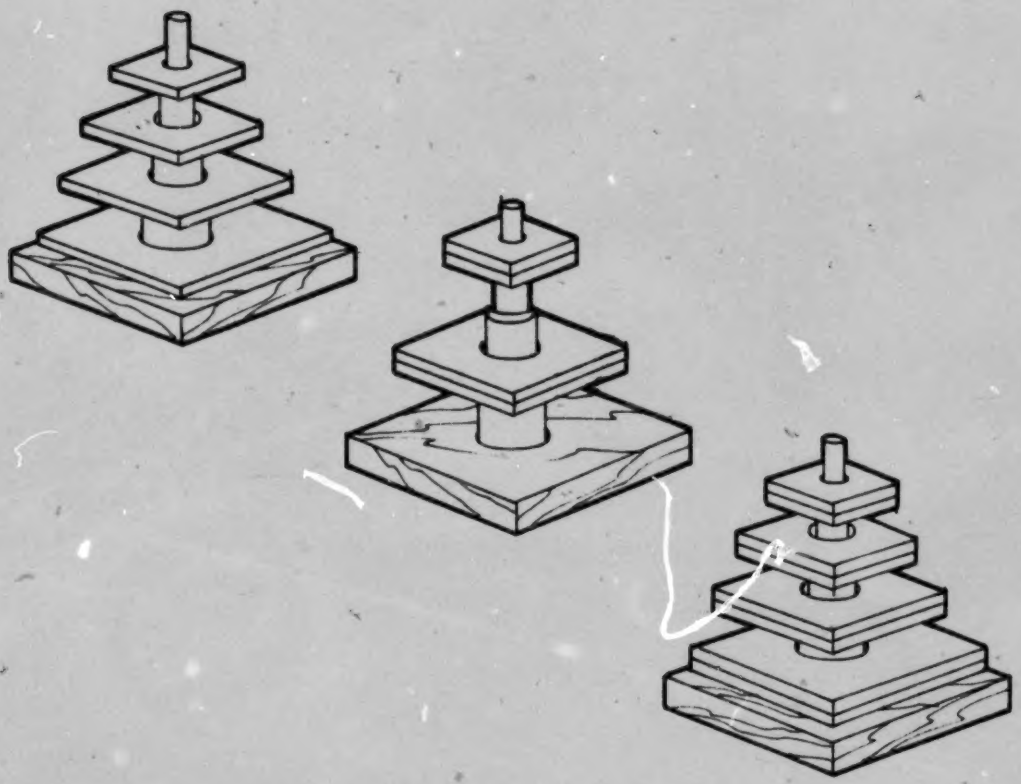
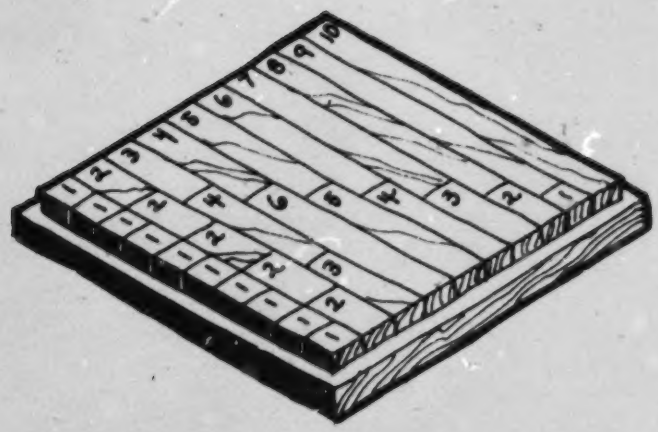


TABLE BLOCKS



Purpose of the Table Blocks

Each of the Table Blocks has a number on it. Each of the smallest blocks is numbered as "1" and the longest block as "10." The blocks have been manufactured so that the relative length of the blocks exactly corresponds to the relationship between the numbers. In other words, a "2" block is two times as long as a "1" block; a "5" block is five times as long as a "1" block, and a "10" block is ten times longer than a "1" block.

The Table Blocks can be used to demonstrate the answer to many arithmetic problems, especially simple addition and subtraction problems. For example, 5 + 3 = 8 can be demonstrated by showing that the length of the "5" block plus the length of the "3" block make the same length as the "8" block.

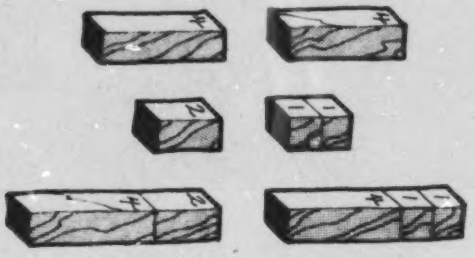
The blocks also can be used to illustrate basic concepts of arithmetic. Some examples of these concepts are:

(1) The sum of several numbers does not depend on the sequence:

2 + 4 + 6 = 6 + 4 + 2

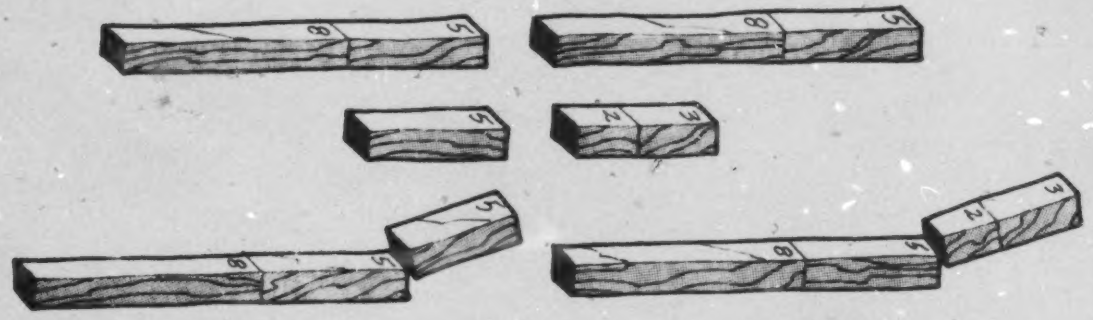
(2) Equals added to equals are still equal:

If 4 = 4 and 2 = 1 + 1, then 4 + 2 = 4 + (1 + 1)



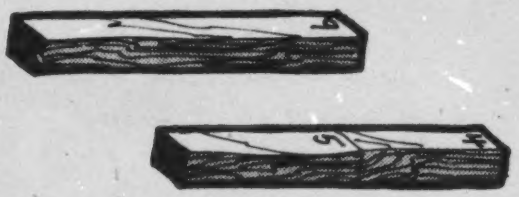
(3) Equals subtracted from equals are still equal:

If 13 = 13 and 5 = 2 + 3, then 13 - 5 = 13 - (2 + 3)



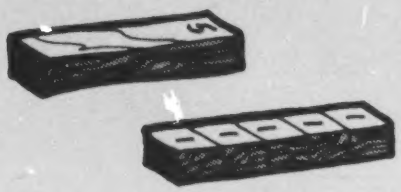
(4) With the exception of "1", every number is equal to the sum of at least two other whole numbers:

9 = 5 + 4



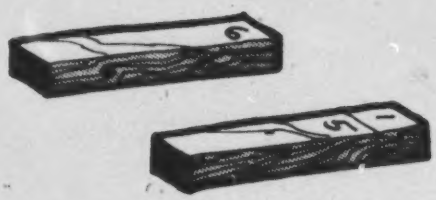
(5) Every number is equal to a sum of 1's:

5 = 1 + 1 + 1 + 1 + 1



(6) When you count, the next number is always one more:

6 = 5 + 1



These basic arithmetic concepts may seem obvious to adults, but children take several years to learn them. Many experiences of counting, measuring, and manipulating different concrete materials are required.

Playing with the Table Blocks is only one experience. Thus, you should not expect that a child will suddenly understand these concepts. However, until they are understood, a child cannot solve arithmetic problems except by memorizing. His ability to solve new problems, or problems in an unusual context, will remain very limited.

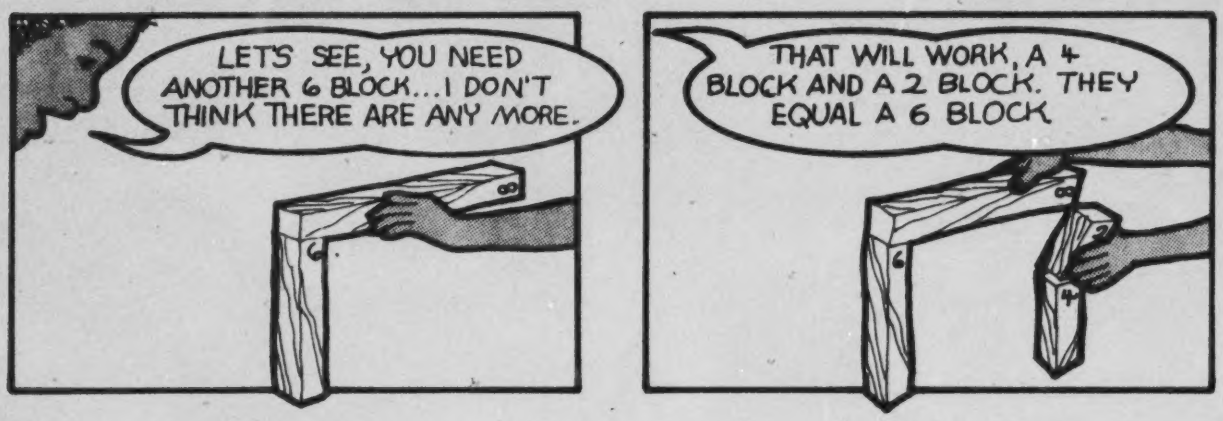
How to Present Arithmetic Problems by Using the Table Blocks

The Table Blocks can be used directly to present arithmetic problems to children. For example, you could ask a child to show you all the combinations of blocks that are the same length as the "8" block. But we believe this procedure may cause many children to lose interest.

Instead, we suggest that you give the blocks to a child and ask him to build anything that he wishes. He may build a great variety of structures and patterns with the blocks, but in each case some arithmetic concept or some arithmetic fact will be illustrated. You can direct the child's attention to this concept or fact. Sometimes you can describe the building or pattern in arithmetic terms. Sometimes you can suggest or demonstrate another activity or exercise that will show the child the same concept or fact. The important point is that you use what the child builds to help him learn about arithmetic; you do not interrupt his play so often that he no longer has fun playing with the blocks. You give the child time to discover arithmetic concepts for himself, rather than pushing him to memorize certain addition or subtraction facts. You answer his questions, but do not test his knowledge of arithmetic by asking him a lot of questions.

How to Describe the Child's Play

Many children first learn to count, add, subtract, multiply, and divide by memory; it is not until years later that they really understand these mathematical operations. As a child plays with the Table Blocks, you often have an opportunity to show the child the connection between what he is building and the arithmetic facts that he may have memorized. You can describe what the child is doing and refer to the blocks by number. For example, as the child tries to find a pillar for a house, you might make comments like:



The response of the child will indicate whether he is ready to consider the relationship between the blocks and number concepts. If he responds positively, perhaps by making an observation of his own about the numerals on the blocks, you should continue to make an extra effort to describe in arithmetic terms what the child is doing.

If the child ignores your comments, it is a sign that he is probably not ready to move from concrete building to talking about number relationships. You can still describe the blocks by using words like longer-shorter, bigger-smaller, more-less or equal-unequal. These terms are also arithmetic concepts used to compare the quantity of two objects or two groups of objects. A child must understand these ideas before he can understand the precise arithmetic relationships defined by numerals.

Although you can help a child learn arithmetic concepts by describing the blocks, you should avoid dominating the activity by talking too much. Continual comment on what the child is building may stop him from playing. No two situations are identical, or course. The amount of adult talk should vary according to the response of the child.

Children Are Concerned with What to Build or How to Build It

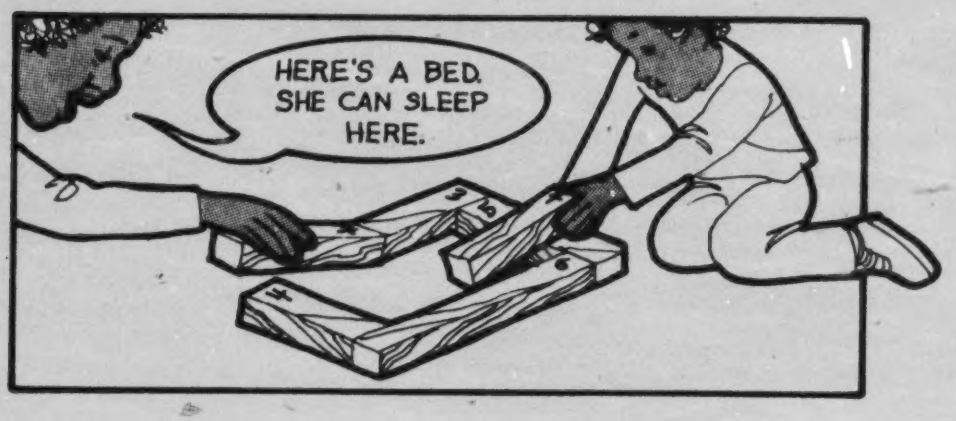
As a child builds with the blocks, he is usually concerned with two questions: (1) "What am I going to build--a man, a house, a garage, etc.?" and (2) "How am I going to build it?" Often, the child is much more interested in one question than in the other. A younger child, or an older one who is playing with the blocks for the first time, tends to be more interested in what he is going to build. On the other hand, a child, especially if he is older than six, may become so inter-

ested in how to build something that he no longer cares too much about what it is. He is primarily concerned with how the blocks can be fitted together, and has almost forgotten what they are supposed to represent.

Of course, a child often goes back and forth between these two questions. He may be primarily interested in using what he is building for pretending, but some small building problem may temporarily engage his interest. He may be primarily interested in how to build something with the blocks; but if he finds himself involved in a building problem that proves too difficult, he will temporarily switch to a pretending activity. In general, younger children are more interested in pretending and older children are more likely to investigate building problems. You should show the child that you are willing to participate with him on the level at which he is interested.

You Can Participate in a Child's Pretending Games

If a child wants to play pretending games, you can encourage him to express his imagination. Sometimes you may not want to join in a pretending game because you feel afraid of appearing foolish. But it is perfectly acceptable for you to contribute as an adult to a pretending game. In fact, children seem to prefer the adult participating as an adult, contributing adult skills and resources. For example, a young child may lay a block on the floor and say, "She has to go to bed now." You do not need to imitate the child by saying, "Here's a Mommy block and she has to go to bed, too." You might make a simple rectangle with four blocks and say:



You Can Suggest Activities to Help a Child with Building Problems

It is not so easy to tell if a child is primarily interested in how the blocks fit together. There are two general categories of building problems that children often create: (1) making the edges even (walls, floors, bridges) and (2) making staircase patterns.

If you see that a child often tries to make edges even or make a staircase pattern while he is building with the blocks, you can suggest an exercise from the instructions. Each exercise is designed to demonstrate an important concept. Although a child may be using this concept in his building, the exercise will focus his attention on the concept and may make it clearer to him.

You should introduce an exercise without interrupting free play or forcing it to stop. When a child is building with the blocks, you can quietly practice an exercise by yourself and watch his reaction. If he shows interest in what you are doing, you can proceed to play the game with him. When a child has stopped building or seems temporarily to have run out of ideas, you might invite him to join you as you show him an exercise. In general, the Table Block exercises do not require a lot of explanation. They can be demonstrated non-verbally. If you find that you must do a lot of explaining, you can assume that the exercise is too hard for the child or it does not interest him. Older children, of course, will be able to read the instructions by themselves and thus choose exercises that interest them, but they will probably still welcome your participation.

MATHEMATICAL BUILDING ACTIVITIES

Making Staircase Patterns

Activity--One person builds the up part of a staircase and asks the other person to build the down part.

I'M MAKING A STAIRCASE.
DO YOU THINK YOU COULD MAKE STAIRS GOING DOWN THE OTHER SIDE?
UH HUH, THIS ONE GOES THERE.
GOOD, THAT ONE IS SHORTER.
THAT SURE IS A BIG JUMP. I THINK WE NEED ANOTHER STEP IN HERE.
WHAT ABOUT THIS ONE?

Making it easier--Build part of the down staircase and leave only one or two steps to finish.

Making it harder--Make an up staircase in which each step is more than one unit taller (for example, 2, 4, 6, 8, 10, 12, or 3, 6, 9, 12, 15).

Ways to change the rules--The child may build a down staircase that is missing several steps. The adult can accept this partial solution, or, if the child is missing only one step, she might help him find it.

Instead of making the staircase go down, the child might want to build it higher.

Making Staircase Patterns

Activity--Make a staircase. While one person closes his eyes, another person removes one of the blocks and hides it with the left-over blocks. The first person opens his eyes and tries to find the missing block.

NOW CLOSE YOUR EYES. I'M GOING TO TAKE AWAY ONE OF THE STAIRS...
...AND HIDE IT WITH THE OTHER BLOCKS.
OK, OPEN YOUR EYES. CAN YOU FIND THE ONE THAT'S MISSING?
NO, THIS ONE'S TOO BIG.
YEAH, IT'S THIS ONE.

Making it easier--Let the child do all the hiding and let the adult do all the finding.

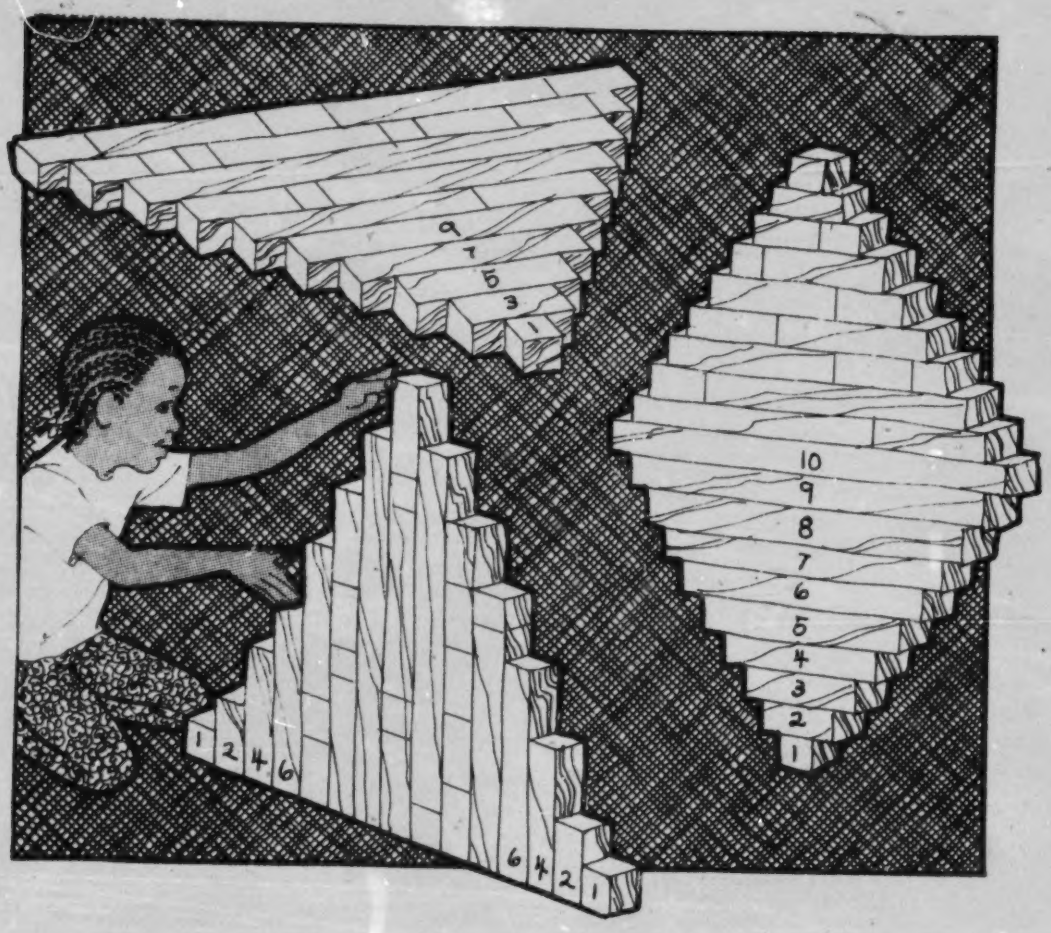
If the adult hides the block, she should leave the space open where the block has been removed so that it is easy to tell which block is missing.

Making it harder--When the block is removed, push the blocks together so that it is not clear which block is gone.

Play the game with an up and down staircase. Remove two blocks, one from each side of the staircase.

Making Staircase Patterns

Activity--Try building the following patterns:



Making it easier--The adult builds part of the pattern on a large sheet of paper and traces around the blocks. Then the child matches the blocks to the pattern on the paper.

Making it harder--Build the patterns as towers instead of putting the blocks flat on the floor.

Make up your own staircase patterns.

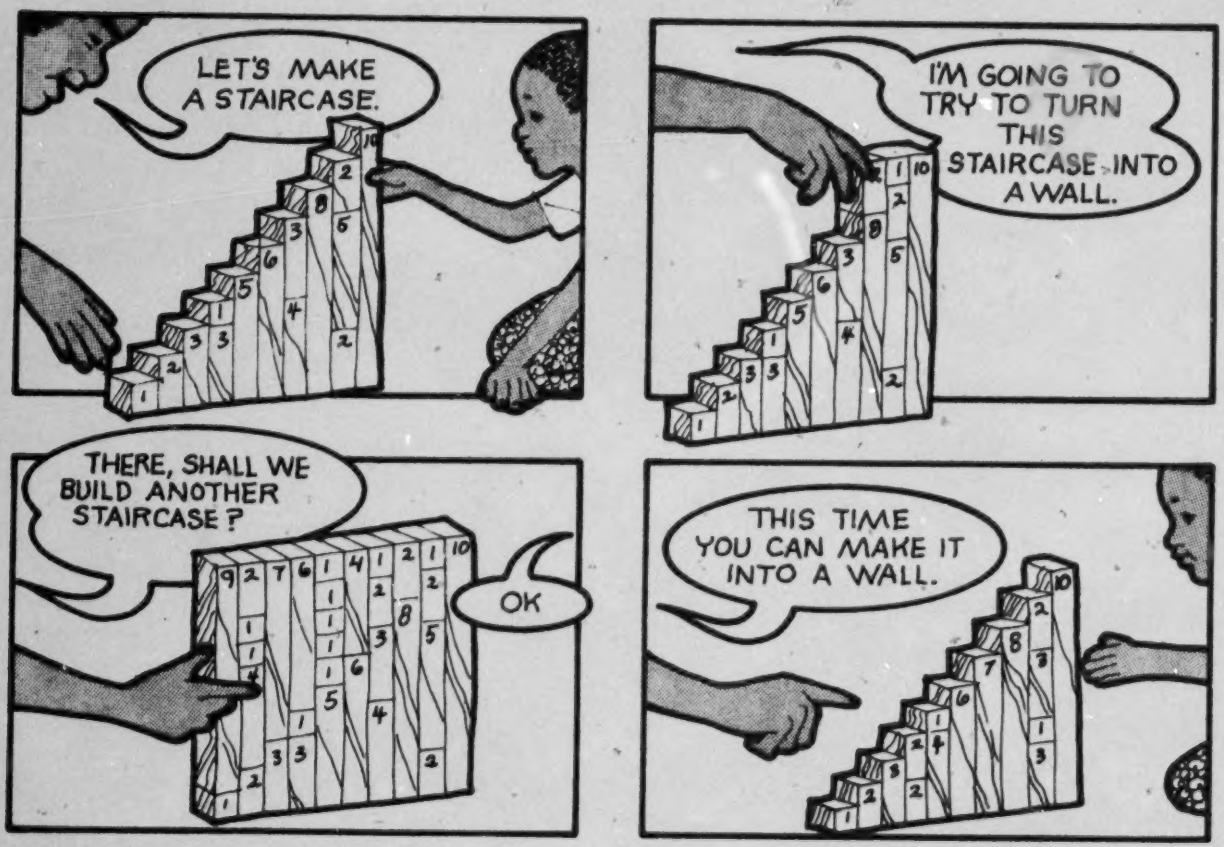
Combination Activity

Activity--Make two identical staircases, 1, 2, 3, 4, 5, 6. Each person plays with one staircase. One person rearranges all the blocks in his staircase into another structure (tower, rectangle, uneven staircase). The other person uses his blocks to copy the new structure.

OUR STAIRCASES LOOK JUST ALIKE.
CAN YOU MAKE YOUR STAIRCASE INTO A WALL LIKE MINE?
CAN YOU MAKE YOURS INTO A TOWER LIKE THIS?
YOU CHANGE YOURS SO IT LOOKS LIKE MINE.

Combination Exercises

Activity--One person makes a staircase pattern and then the other person tries to make it into a rectangle by adding blocks.


LET'S MAKE A STAIRCASE.
I'M GOING TO TRY TO TURN THIS STAIRCASE INTO A WALL.
THERE, SHALL WE BUILD ANOTHER STAIRCASE?
OK
THIS TIME YOU CAN MAKE IT INTO A WALL.

Making it easier--The adult makes a staircase pattern (1, 2, 3, 4, 5) and helps the child make it into a rectangle by adding "1" blocks (it will take ten of them).

Making it harder--Build the staircase like a tower with the smallest blocks on the bottom. Then add enough blocks to make a wall. When the wall is finished, take turns trying to remove a block without knocking down the wall. It is not always necessary to remove the top block.

Ways to change the rules--When it is the child's turn to give the adult a problem, he may build an irregular pattern instead of a staircase. The adult can play in the same way, trying to add blocks until the structure is a rectangle with even edges on all four sides.

Filling in Rectangles

Activity--A child who shows interest in fitting all the blocks back in the frame is indicating an interest in making even edges. There are many different ways to put the blocks in the frame.

THIS ONE WON'T FIT.
MAYBE IT WILL FIT IF WE REARRANGE SOME OF THE BLOCKS. I'LL TAKE THIS 3 BLOCK OUT.
NOW WE NEED A LITTLE BLOCK... HERE'S ONE.
NOW THERE'S ENOUGH ROOM FOR ALL OF THEM.

Making it easier--To make the problem appropriate for children as young as one year old, fill the frame; then remove only one or two blocks and see if the child wants to fit them back in.

Making it harder--While the child's eyes are closed, remove one long block and hide it. Dump the other blocks out of the frame, and ask the child to open his eyes and fill the frame. When he is through, give him the missing block and see if he can fit it in by rearranging the blocks in the frame.

Filling in Rectangles

Activity--The adult can make a small rectangle frame with some of the blocks and then see if the child wants to fill it in with the blocks that are left over.

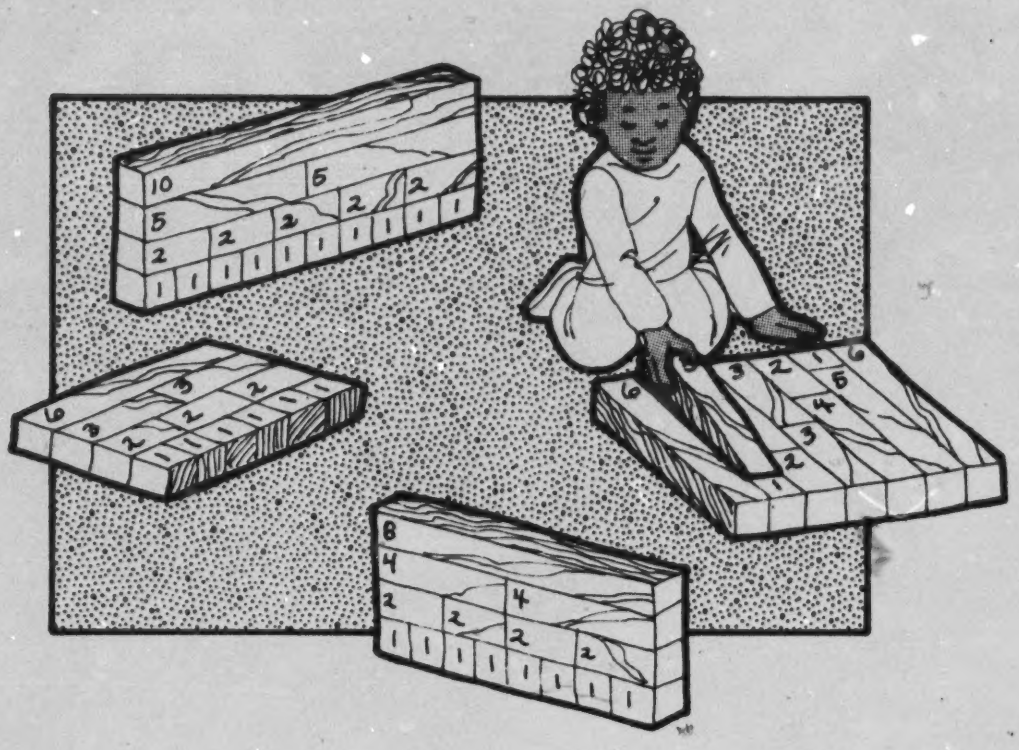
Making it harder--(1) Draw a rectangle outline on paper that is 25 x 4 inches or 20 x 5 inches. Then see if the child wants to use all the blocks to fill up the rectangle.

(2) Try to use all the blocks to make a filled-in rectangle, without using the frame or an outline on paper.

Ways to change the rules--If the child finds the problem too difficult, he may make up a reason for leaving some holes in the rectangle; for example, they may be windows, doors, beds, etc. The adult can either accept the change in rules or offer to help the child fill the holes.

Making Rectangle Patterns

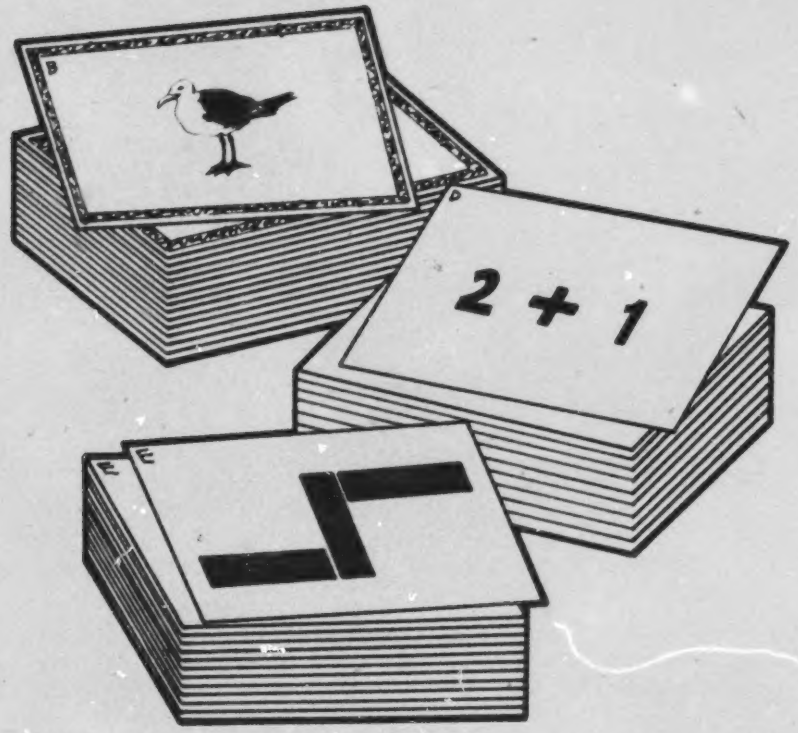
Activity--Try building these rectangle designs:



Making it easier--The adult builds the design on a sheet of paper and traces around the blocks. Then she lets the child match the blocks to the design on the paper.

Making it harder--Build the rectangles upright so that they look like walls.

DISCOVERY GAMES



The Purpose of the Discovery Games

The purpose of these card games is to help a child feel more confident in his ability to generalize. Often a child learns by accepting the generalizations of other authorities, such as parents, teachers, books, or television, instead of discovering the generalizations for himself. However, the ability to discover a valid generalization is at the heart of intellectual achievement. Every strand of knowledge was the original discovery of some individual; the pattern of the future rests on individual discovery. The card games can make a small, but significant, contribution to a child's faith in discovery learning.

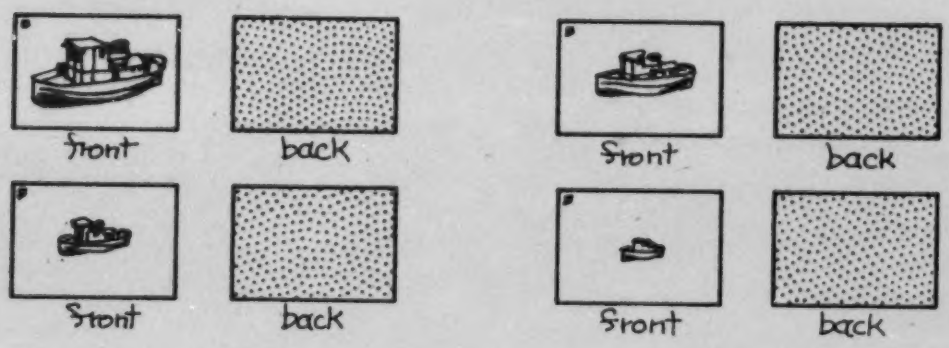
The reasoning process used when playing with the cards is the same one a child uses every day to solve other problems. The difference is that the card games present a set of more limited and concrete problems for a child than more elaborate problems such as learning how to read a book, draw a horse, tell time, count money, build a treehouse, or cook a meal.

Each deck consists of forty cards; an even number of sets of cards make up each deck. The cards in each set look different on the front side but are identical on the reverse side. The problem is to figure out, by looking at the front sides, which cards are identical on the reverse sides. There is a different generalization, or rule, in each deck for finding the matching cards. Once a child discovers it, he can immediately pick up cards that match on the reverse side.

The rules in the card games (especially decks E, F, G, and H) involve important arithmetic concepts. You should realize that a child must have some understanding of the concept involved in a rule in order to discover it. Playing with the cards may help a child more fully understand a concept, such as counting, but it is not sufficient by itself to teach him that concept. If a child does not understand a concept well enough to discover the rule, you should help him use the cards to play a simple matching game.

Arithmetic Concepts Involved in the Cards

As a child plays with Deck B*, he gains experience in recognizing differences in size. He also learns about the concept "same color" by matching the colors on the reverse side. A set of four cards looks like this:



RULE: If the front sides of the cards show a picture of the same object, regardless of size, the colors of the reverse side will be identical

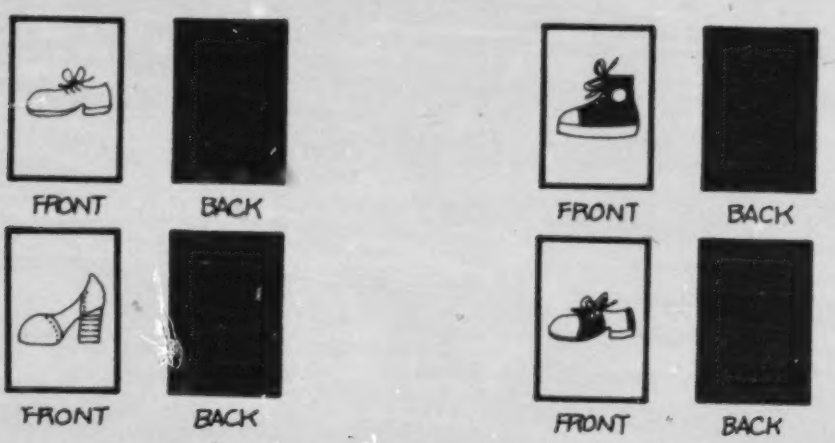
*Note: Deck A has not yet been produced for use with this learning unit.

In the case of Deck B, a child tries to discover a rule for finding all the cards that have the same color on the reverse side. The rule is easy. All the cards that show the same object on the front will be the same color on the reverse. The fronts of the matching cards are identical except that the size of the object changes.

However, this simple rule is hard to discover because the connection between the picture on the front and the color on the reverse is arbitrary. Looking at the front of one card will not help a child predict the color of the back. It is necessary to compare the fronts of two cards and at the same time compare the backs of the cards. Separately, these two comparisons are easy for a younger child. He can recognize that the fronts show the same object and that the backs show the same color. However, it is hard for him to realize that there is a connection between these two comparisons. Two cards that look alike on the front will always match on the back.

The thought process involved in solving Deck B might go as follows: This is a picture of a car; turning it over I see blue. Here is another picture of a car except that it is a smaller car; turning it over I see blue. Here is another picture of a car except that it is larger; perhaps it is blue, too. Clearly, several steps in the thought process are necessary to discover the rule in Deck B. All the other decks are similar to Deck B in that the connection between the front and back of a card is arbitrary.

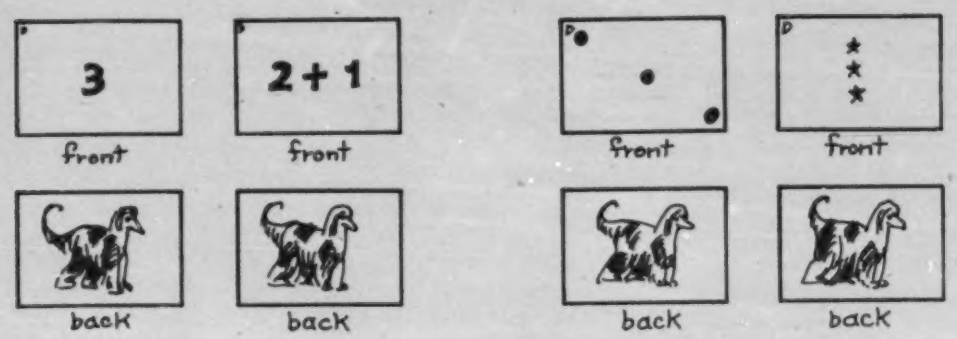
With Deck C a child begins to learn how objects that look somewhat different belong to the same category. There are four cards for each category. For example, here are the four cards in the category of shoes:



RULE: If the front sides of the cards show objects that belong to the same category, the colors (e.g., orange) of the reverse sides will be identical.

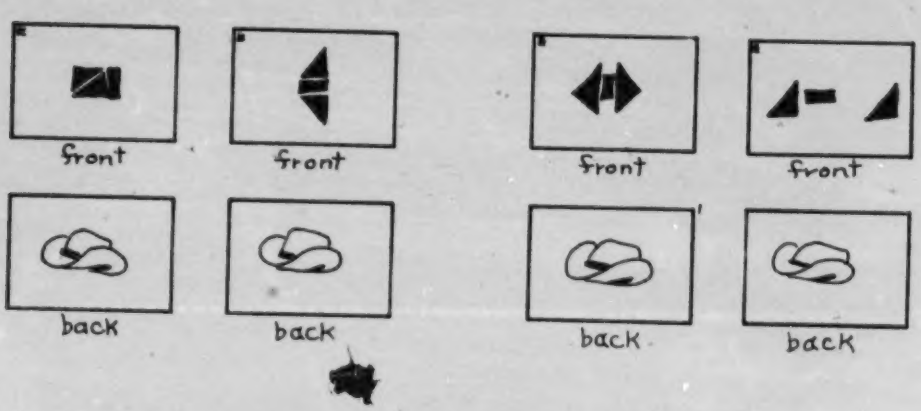
Each deck requires a new solution. A child may have difficulty discovering the rule of a new card game because he keeps trying to apply a rule from a previous deck. The difference between Decks B and C illustrates this problem. A child discovers the rule in Deck B by finding two cards with the same object on the front. However, with Deck C it is not possible to find identical objects on the front sides of the cards. A child who continues to look for them may become discouraged or confused. He may be unable to change his perspective enough to discover the rule. Although the variety of rules in the card games may help a child develop flexibility in his thinking, you should be aware of the possible frustration.

The arithmetic concept involved in Deck D is counting and simple addition. A child must recognize the same number of objects in different patterns. He also must recognize and understand the numerals 1-10. A set of four cards looks like this:



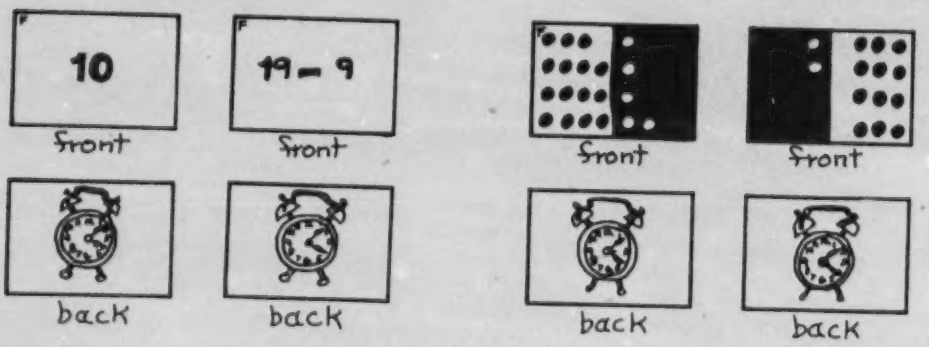
RULE: If the front sides of the cards show the same total number of objects (or the equivalent in numerals), the pictures on the reverse sides will be identical.

When playing with Deck E, a child learns to recognize the same shapes when they are combined and separated in various ways. He is learning that two areas can be equal even if they look very different. A set of four cards looks like this:



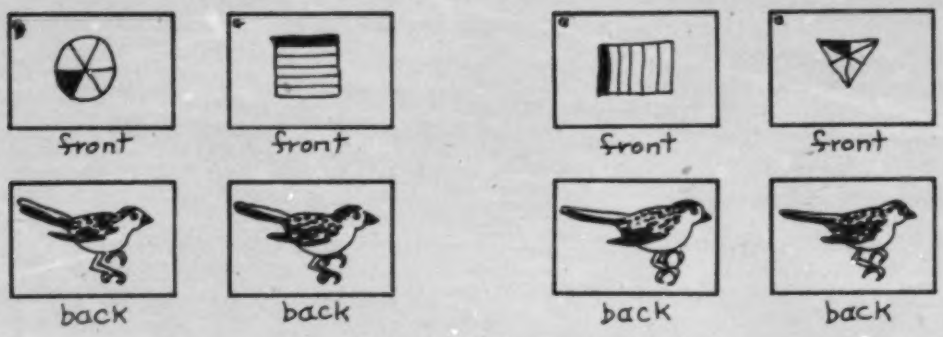
RULE: If the front sides of the cards show the same shapes in different positions, the pictures on the reverse sides will be identical.

The concept in Deck F is subtraction. A child learns to find the differences between two sets of objectives. The child must also understand the numerals 1-10. A set of cards looks like this:



RULE: If the difference between the black circles and white circles on the front side of one card is equal to the difference (or the numeral) on another card, the pictures on the reverse sides will be identical.

When playing with Deck G, a child learns to recognize pictures using the same proportions. A set of four cards looks like this:



RULE: If the front sides of the cards show the same proportions of two colors, the pictures on the reverse sides will be identical. The proportions may be 1/3, 1/4, 2/3, etc.

Decks D, E, F, and G have been designed for older children. In each of these decks the fronts of matching cards have purposely been made to look very different. A child is not likely to find a pair by picking up two cards that look similar. He must mentally manipulate the shapes on the fronts of the cards in order to see if the cards are alike in some way. With Deck D, he must be able to count the shapes. With Deck E he must be mentally able to combine and separate the shapes. With Deck F he must be able to subtract the shapes on one area of the card from those on the other area. With Deck G he must be able to recognize two shapes with the same proportions.

How to Start the Game

There are two basic ways to play with each of the six card decks. One is more appropriate for younger children, the other for older children.

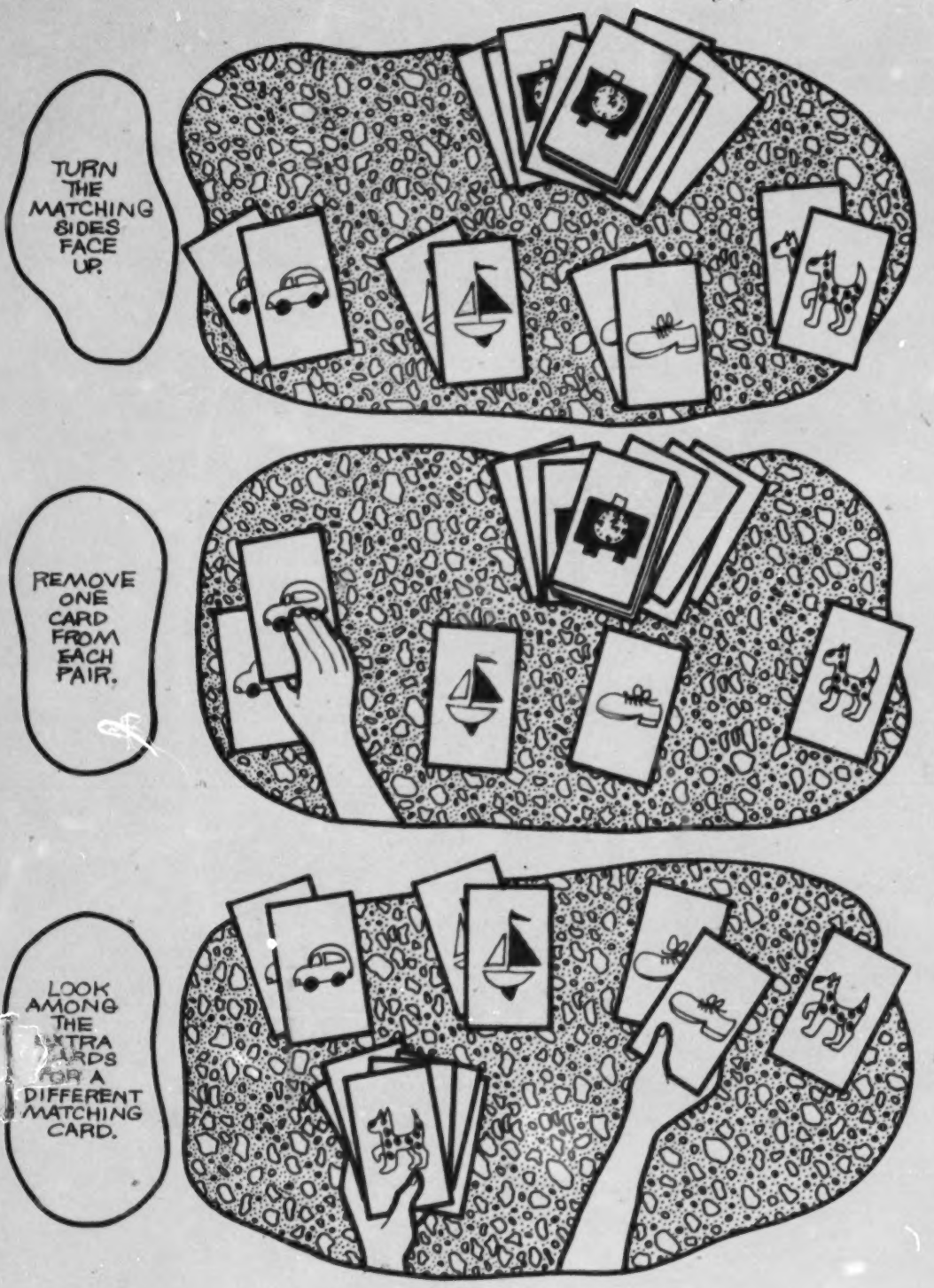
With younger children, we suggest using only two sets (eight cards) at a time. You should help the child find two sets of four cards. The back sides of the cards in each set will be identical. The cards are mixed up and then laid on a table with the back sides face down. Then you and the child take turns picking up one card at a time and looking at the reverse side. The child tries to find the four cards in one set, and you try to find the other set.

The second way to play is to begin the game with two to ten pairs of cards from a deck. A pair of cards is two cards that have an identical picture on the back side. The cards are laid on the table with the back sides face down, then are mixed up. You and the child alternate turning over two cards at a time. If the cards match on the back sides, they can be collected. If they do not match, they are turned face down again. This way of playing is exciting, but it requires turning over two cards at a time, which is a rule that many preschool children do not want to follow. Therefore, it is most appropriate for older children.

The card games have been designed to be flexible so that they can challenge different children without frustrating them. It is important for you to help each child start the game at a level of difficulty that

is appropriate. To make the game easier, you can start with as few as two pairs. To make it harder, you can increase the number of pairs. If you are in doubt, it is better to start with only a few pairs. As a child becomes better at finding the pairs, he probably will want to increase the number of cards in the game. Some older children even may want to play with all forty cars. This means that they may find 20 pairs or change the game so that all four cards of a set have to be turned up at the same time.

If the game is played with ten, or fewer, pairs of cards, you can help the child change the pairs for a new game. The pairs should be placed on the table with the matching sides face up, and one card from each pair removed and set aside. Then you can help the child look among the extra cards that were not used in the previous game and find a different matching card for each of the single cards on the table.


TURN THE MATCHING SIDES FACE UP.
REMOVE ONE CARD FROM EACH PAIR.
LOOK AMONG THE EXTRA CARDS FOR A DIFFERENT MATCHING CARD.

The Card Games Can Be a Source of Both Satisfaction and Frustration

Finding the solution to a card game can be very rewarding. Generally, the greater the effort required to solve the problem, the greater the satisfaction when it is solved. At the same time, however, the greater the effort required, the more likely frustration becomes. The card games can be a double-edged sword. If a child, or an adult, chooses to play and discovers the rule, he will be excited; but if he fails to discover the rule, he may become angry or distressed.

The card games can be especially frustrating because the learner may have difficulty deciding which information on a card is pertinent for the solution. For example, a child might ask himself the following questions: Is the total number of shapes on a card important, or do you subtract the small shapes from the big ones, or do you divide the red shapes into the blue ones, or do you count only the stars and forget everything else, or does it have anything to do with numbers? Because the questions are almost infinite, the task can become very complicated. As the questions become more numerous and complicated, it becomes more difficult for a child to keep them straight in his mind and to test them out. On the other hand, no questions may occur to the child and he may pick up cards for no reason, hoping to stumble on the solution.

In either case, finding the relevant question (or hypothesis) is frustrating. The solution often appears simple <u>after</u> the right question is asked. For example, Deck F is difficult even for adults because many people do not consider the possibility of a subtraction rule. Yet the concept in Deck F is relatively simple, once the right hypothesis is stated.

Sometimes a child, or an adult, will just stare at the cards until he is sure that he has found the correct hypothesis. He is testing out theories in his head before turning over any cards because he is afraid of making a mistake. However, being willing to make a mistake can help a child discover the rule in a card game. The most efficient way to test a hypothesis is to turn over two cards. If the hypothesis is correct, the cards will match; if it is not correct, a child can immediately reject his hypothesis and develop a new one. You should be very careful to avoid making a child feel sad about any mistakes he makes when playing with the cards. Gradually, he may gain enough confidence in his problem-solving ability to risk the chance of making mistakes.

You can help a child discover the rule by playing with him. Every time you make a pair, the child sees an example of the rule to be discovered. It is a weak hint if you simply make a pair when it is your turn. It is a strong hint if you call special attention to certain details on the front of the card as you make a pair. The instructions include three examples of giving hints, ranging from a relatively weak to a strong hint. As long as a child is enjoying a card game, we believe you should not give any strong hints because it is hard to give one without telling the child the solution. If the child becomes frustrated, you can try to make the game easier, as described in the instructions, or suggest a matching game, such as "Fish," that does not require discovering a logical rule.

A child's frustration may increase if he feels that the adult will "win" every game. Most children, especially older ones, realize that the adult already knows the rule and therefore has an advantage. Each adult should decide for herself how to handle this problem.

You can make intentional mistakes some of the time. This strategy makes the game appear more even, but it may mislead a younger child into thinking that there is no rule and it may insult an older child if he feels that you are being condescending.

You can let the child have extra turns. However, when you do not participate equally in the game, it may become more like a lesson than a game, with the adult playing the role of a "teacher."

You can decide to not play in the game at all. Instead, you can observe several children as they play by themselves. The disadvantage of this strategy is that you cannot give hints by making pairs, and you may not be able to respond to frustration until after it has occurred. The child who first discovers the rule may ruin the game for the other children. He may tell them the rule before they can discover it for themselves, or he may make them feel stupid by matching all the cards.

Your role in the card games is complicated and subtle. You must adapt your behavior to each different situation, trying to help each child discover the rule for himself without his becoming too frustrated. It is impossible to avoid mistakes, but it is very important for you to keep trying. Without your guidance, the card games may have a harmful effect on a child's feeling of competence. He may feel less confident of his reasoning ability if he becomes too frustrated.

Some Children Play the Card Games on a Memory Level

The first few times a child plays with the cards, he may think the game is a memory game like "concentration." He will try to make pairs by memorizing the location of the cards. When he remembers where two matching cards lie on the table, he will pick them up. After he has discovered that the deck has a trick to it, that the matching pairs can be determined by looking at the front sides, he will not be fooled again into thinking that another deck is just a memory game.

Some children will persist, however, in playing with each new deck as if it were a memory game. They may go beyond remembering the location of the cards on the table and memorize which cards go together, regardless of their position. The adult may become concerned that the child is missing the point of the game because he has avoided the logic problems in the card games.

The child is indicating that he is not interested in finding a logical solution or that he does not understand the concept involved in a rule well enough to play the game as a logic game. In either case, you should accept his way of playing. There is no way to force a child to discover a rule. Eventually, the child may see a reason for the pairs he has memorized.

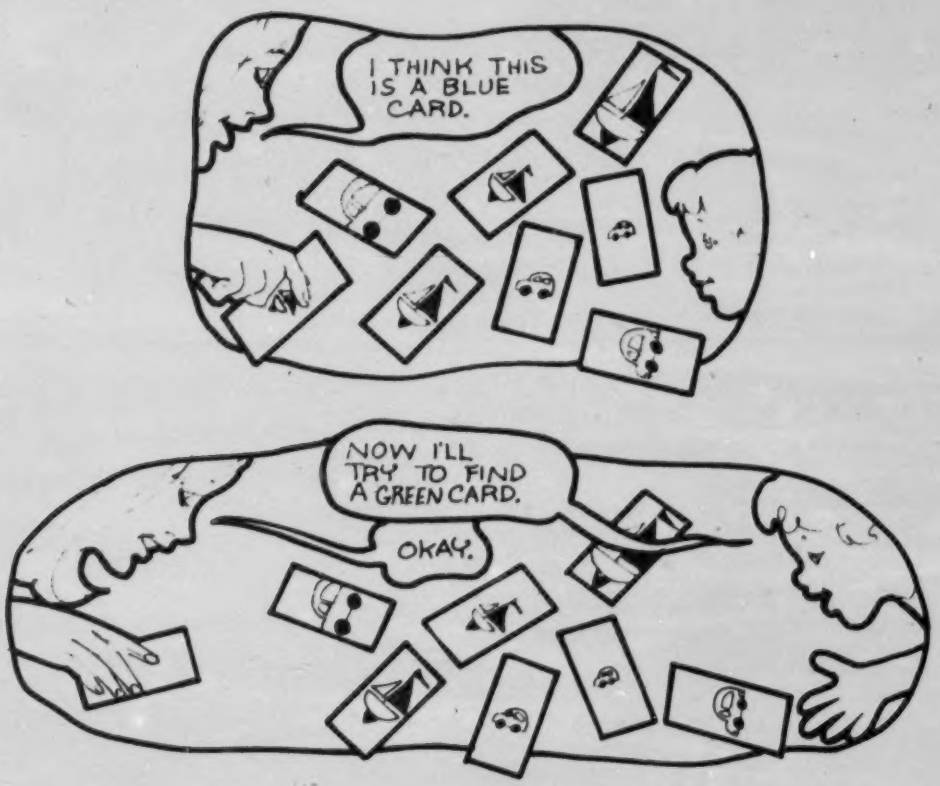
HOW TO PLAY CARD GAMES WITH A YOUNGER CHILD

Deck B and Deck C

1. Show the child the set of colors on the backs of the cards. Ask the child what color he likes best. Pick out the four cards with that color. Select another color for yourself and find the four cards with that color.

2. Turn over eight cards so that the color side is face down and mix the cards around. Encourage the child to find his favorite color; you look for the other one.

3. Take turns picking up one card at a time. Give the child plenty of time to discover for himself that the cards with the same picture on the front are the same color on the back.

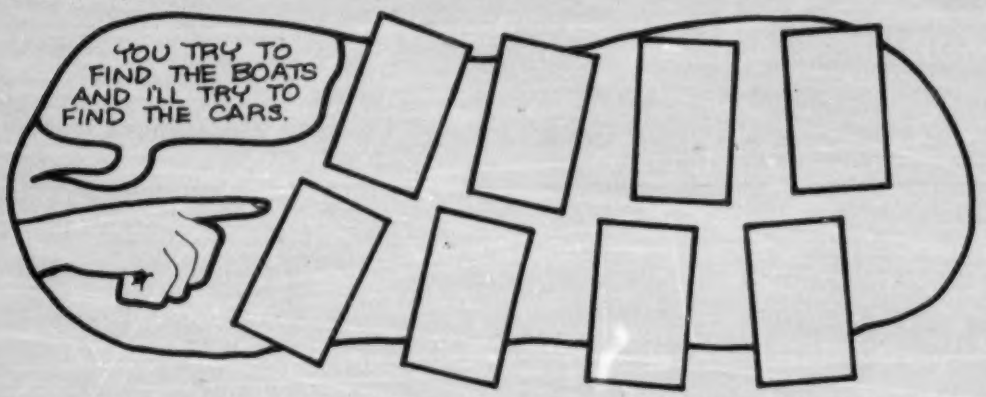


4. When all the cards have been turned over, choose two other colors (eight cards) and play the same way.

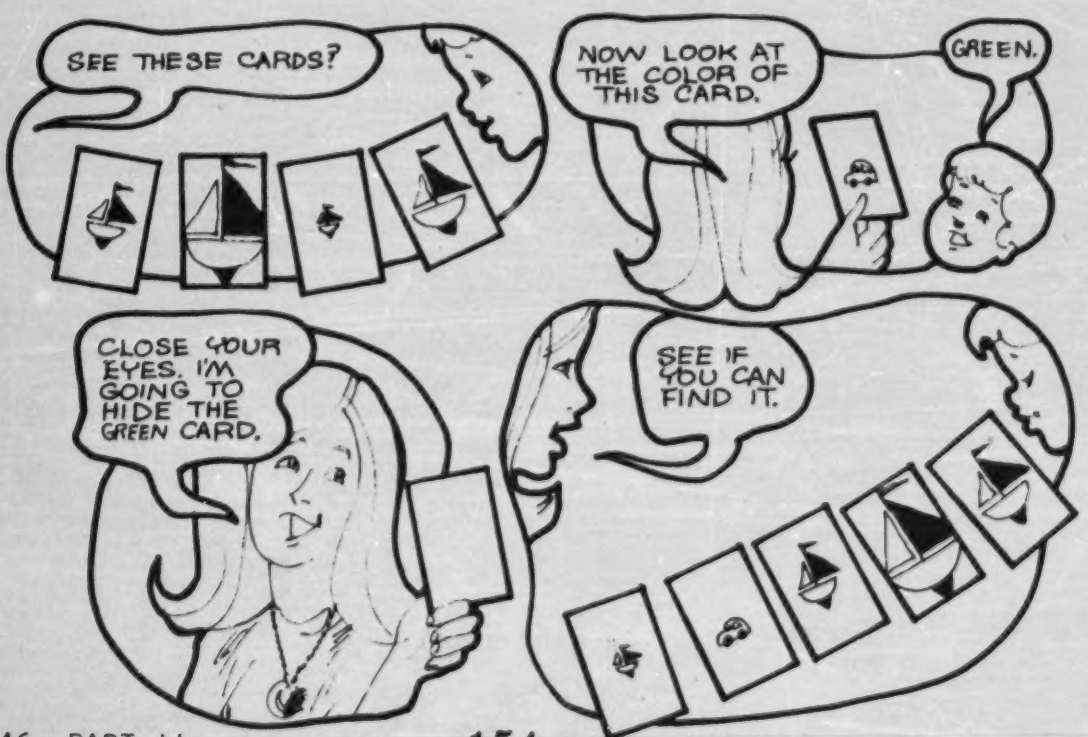
Ways to Make the Game Easier (Decks B and C)

If a child seems to be getting frustrated or does not understand the game, you can make it easier. Here are two ideas:

1. Start the game with four cards of one color and four cards of another color. Lay them out with the color side face up. Take turns picking up one card at a time and looking at the picture side. Let the child try to find four cards with the same picture; you find the four cards with the other picture.

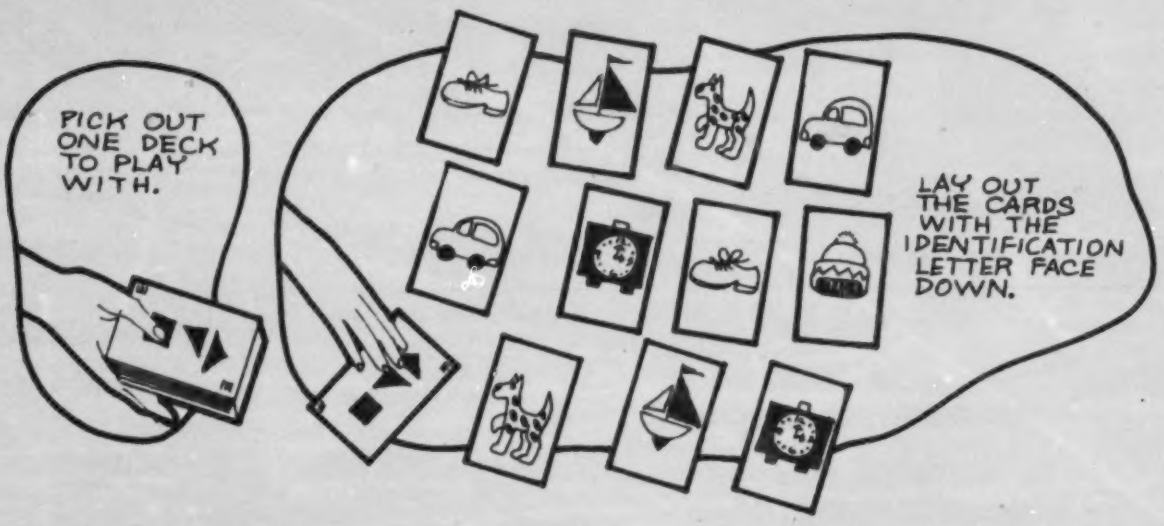


2. Find four cards that are the same color. Lay them out with the color side face down. Pick out another card from the deck and show it to the child. Tell him you are going to hide the card with the four cards that are already laid out. Place the fifth card, color side down, with the other four cards and mix them around. Ask the child to find the hidden card.

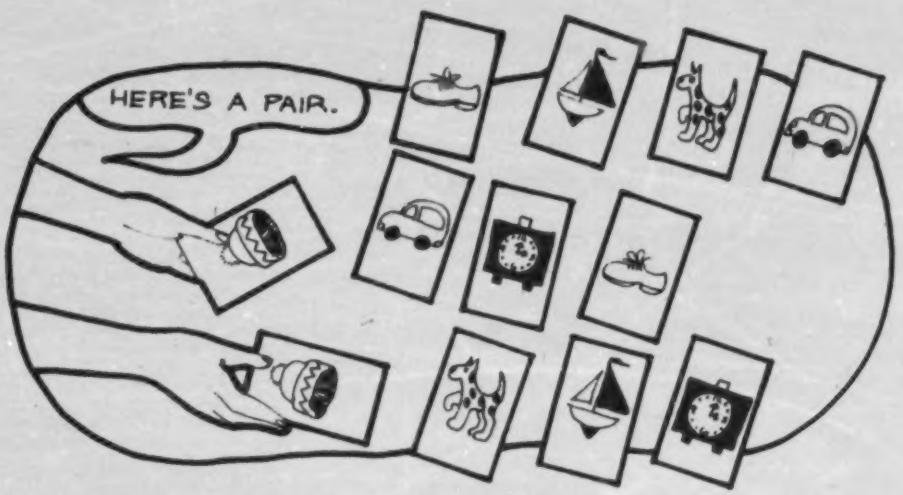

SEE THESE CARDS?
NOW LOOK AT THE COLOR OF THIS CARD.
GREEN.
CLOSE YOUR EYES. I'M GOING TO HIDE THE GREEN CARD.
SEE IF YOU CAN FIND IT.

HOW TO PLAY CARD GAMES WITH OLDER CHILDREN

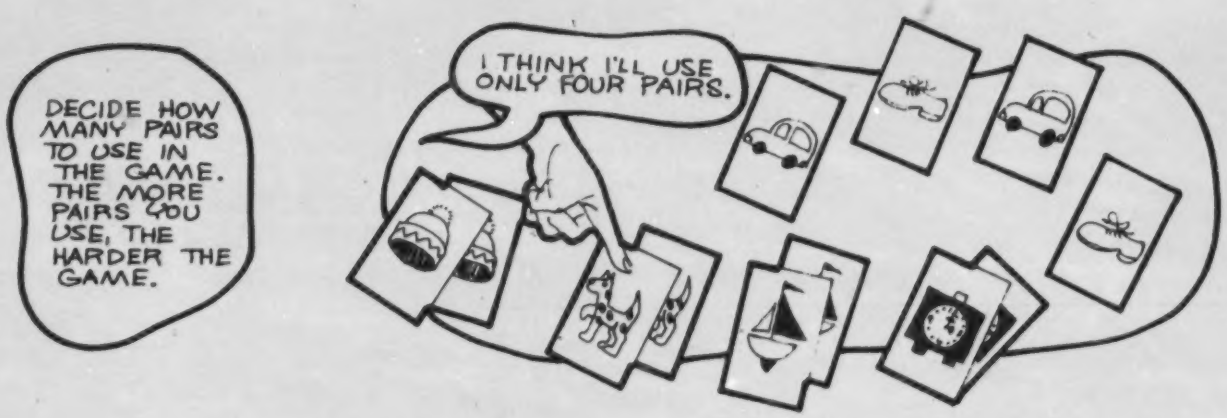
1. Pick one deck to play with. Decks B and C are easier than Decks D, E, F, and G. Lay out the cards so that the side with the identification letter (B, C, D, E, F, or G) is face down.



2. Find pairs of cards that are identical matches. With Decks B and C, the cards will be matching colors. With the other decks they will be matching pictures.



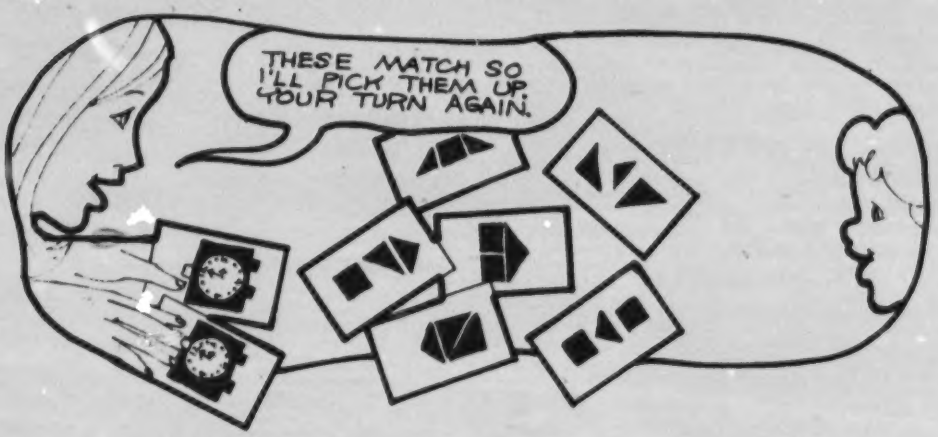
3. Decide how many other pairs to use in the game. The easiest way to play is with two pairs (4 cards). The most difficult way is with twenty pairs (40 cards). It is best to start with no more than ten pairs (20 cards). If you are not sure how many pairs to use, start with an easy game, for example, four pairs (8 cards).



4. Turn over the pairs you selected so that the identification letter is face up. Mix the cards around and you are ready to play the game. The person who goes first turns over two cards that he thinks match on the reverse sides. If they do not match, they are turned back over and another person takes a turn.

NOW WE'RE READY TO PLAY.
TURN OVER TWO CARDS AND SEE IF THEY MATCH ON THE OTHER SIDE.
THESE AREN'T THE SAME.
THAT'S RIGHT. SO TURN THEM BACK OVER. I'LL TAKE A TURN.

5. If the cards match, they can be collected.

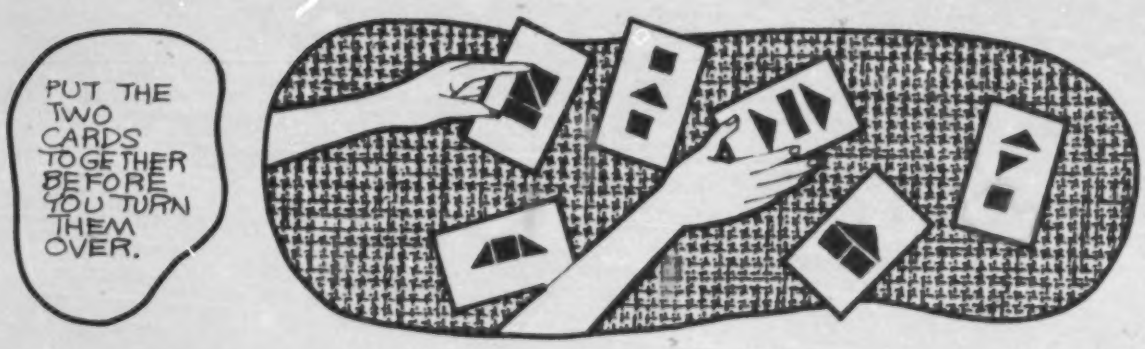


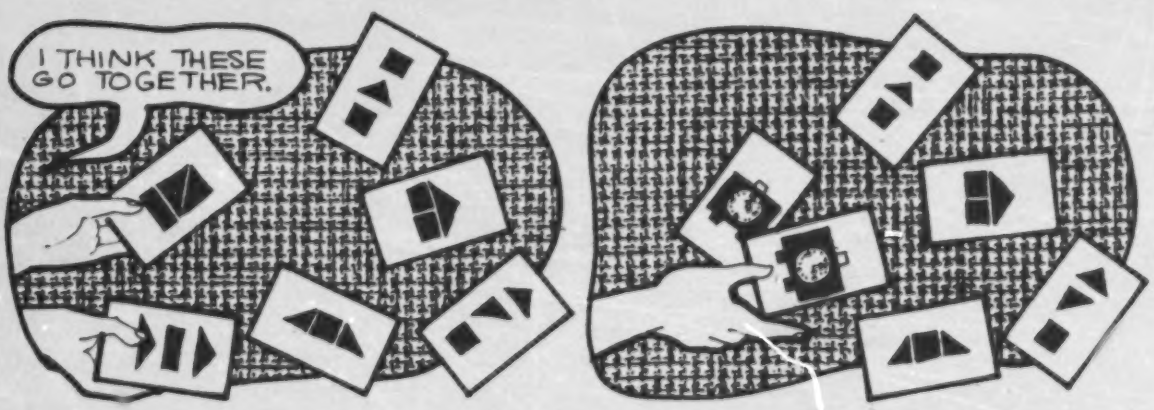
6. Continue taking turns until all the pairs have been collected. The next time you play with this deck, start the game with different pairs.

Ways to Give Hints

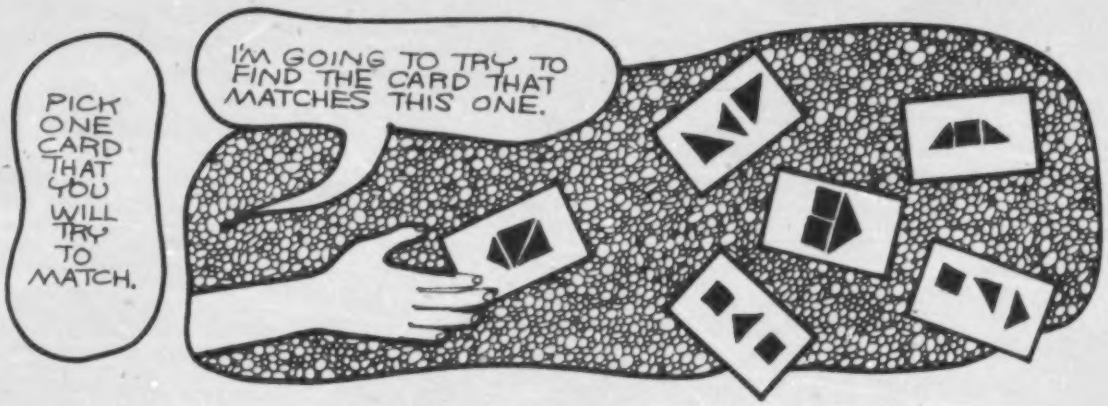
The way you find a pair can be a weak or strong hint. It is best to start with a weak hint and use stronger ones later if necessary. Here are three ways to give hints, starting with the weakest and ending with the strongest:

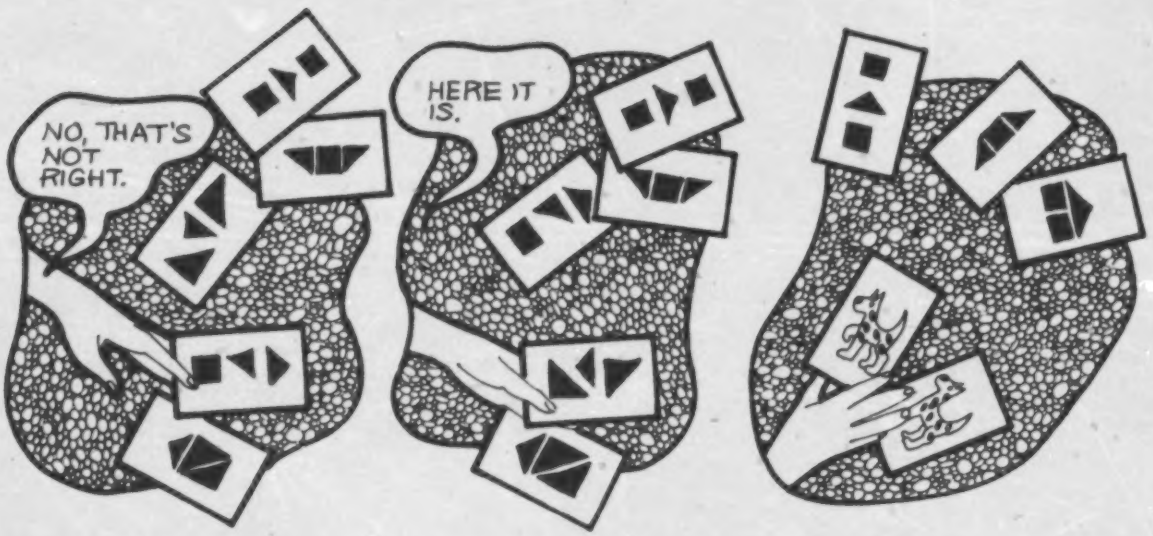
1. When you pick two cards that you think go together, put the two cards together before you turn them over.



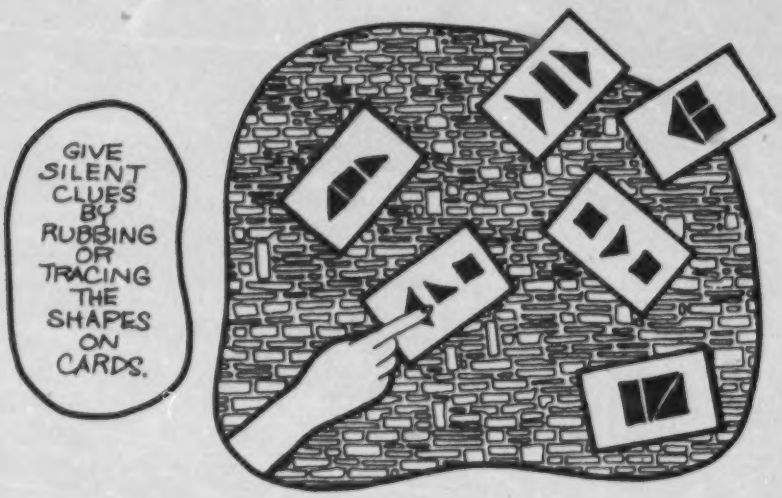


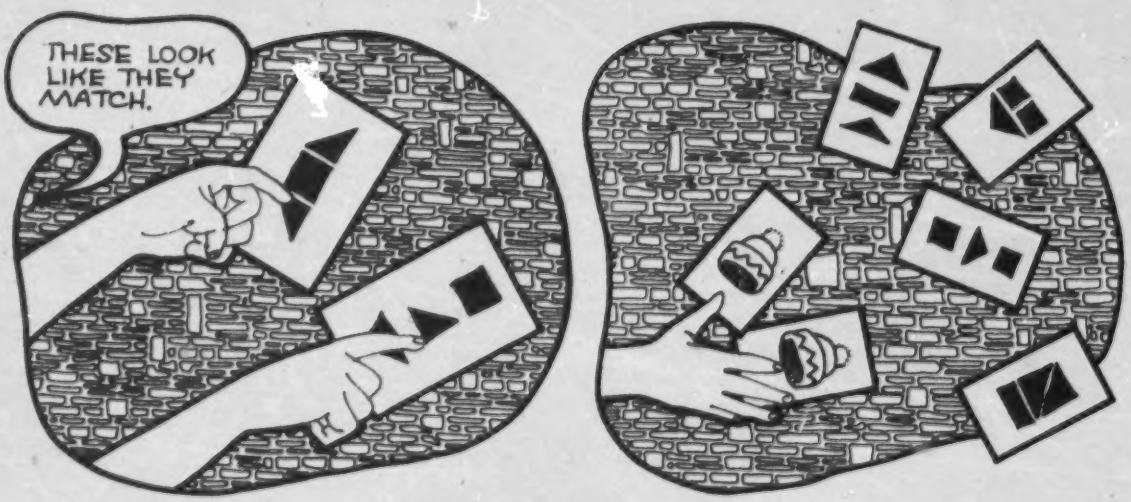
2. Pick out one card and put it to the side. Tell the child you are going to try to match that card. Hold one or two incorrect cards next to the card you are matching, then reject them. After that, find the correct card, hold it next to the card you are matching, and turn over the matching pair.



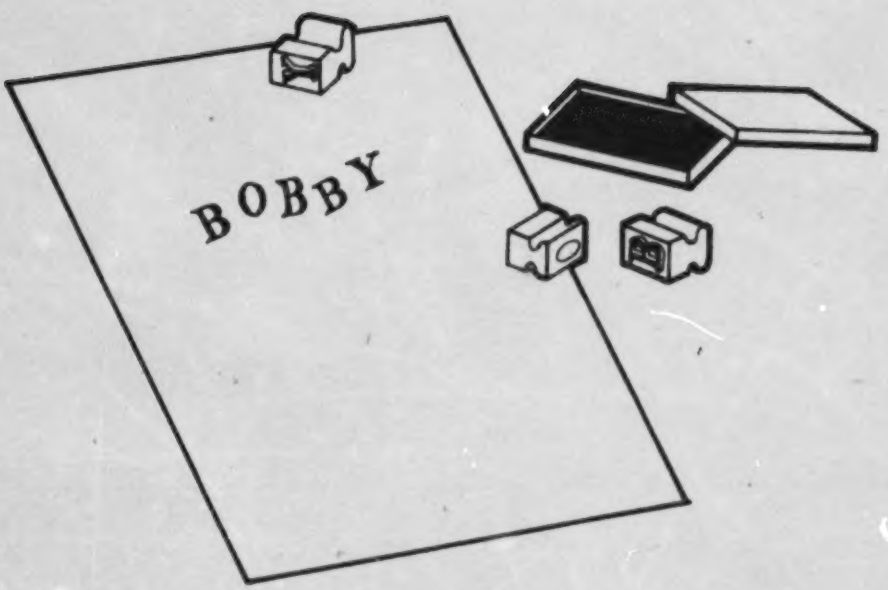


3. Call attention to the fronts of the cards by rubbing them before turning them over. If you need to give a stronger clue, trace the outlines of the figures on the cards with your finger, then turn them over.





RUBBER STAMPS



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Purpose of the Rubber Stamps

The purpose of the Rubber Stamp activity is to give a child the opportunity to play and experiment with letters and words in a way that is fun. The process of stamping is interesting in itself. Most children enjoy controlling how the ink goes on the paper. With a stamp a child can produce a perfectly formed letter with a single movement. When a child is first playing with the Rubber Stamps, you should expect an initial period of free exploration in which the child experiments with ways to stamp the letters.

As a child is stamping, he may get smudges on his paper, or stamp some letters incompletely, or print them sideways or upside down, or stamp one letter on top of another. Such awkwardness can cause a child to become frustrated. You can reduce the possibility of frustration by not putting pressure on a child to print neatly. If an adult constantly criticizes and corrects what the child is doing, the child may become reluctant to stamp anything for fear of being "wrong."

You should not expect a child to print a large number of words or sentences. The stamps are not the most efficient way to produce written language. It takes time to find each letter before it is used. You can encourage a child to use the stamps by helping him find the letters he needs. You can also show the child how to keep the stamps organized in the box while he is playing.

The Rubber Stamps are a rather messy toy, especially for a young child. A child is likely to get some ink on himself or on his clothes while he is playing. You should make sure that each child wears old clothes and that the stamps are used in a place where no one will have to worry about getting ink on a rug or furniture. Even though the ink is washable, cleaning up will be easier if some precautions are taken.

Helping Younger Children Use the Rubber Stamps

Adults have been able to read for so long that they find it hard to imagine what it is like to look at a printed page and see nothing but meaningless marks made by ink. But that is the way a young child may see letters. When he uses the Rubber Stamps for the first time, he may see them as 26 rather mysterious designs; it may take him a considerable period of time to learn that each design is a different letter with a particular name.

You can help the child learn the names of the letters by talking with him as he is stamping. If you name the letters, the child sees that you are interested in what he is doing and at the same time he associates the names of the letters with their shapes. You should avoid asking the child the names of different letters because this questioning can be disruptive to his play. The child may feel that you are trying to control the activity and to turn the stamping into a lesson rather than a game.

Because you know more about letters than the child, you are faced with the problem of how to give the child information about the letters without dominating the activity. To make the situation more equal between the child and yourself, you should join in the stamping activity as an active participant rather than as supervisor. Instead of trying to intervene in what the child is doing, you can use the stamps to print something that you think is interesting. This activity creates a casual and relaxed situation in which both you and the child are involved and you can talk together about what you are doing. In this way conversation about the letters arises spontaneously.

When a younger child plays with the stamps, he is likely to choose some letters more often than others. As you play, you should watch to see which letters the child seems to be particularly interested in, and then try to use them in other ways during the day. For example, if a child's favorite letter is B, you might put a letter B in an envelope and put it in a "mailbox" for that child, or hide several B's around the classroom where that child would be likely to find them during the day, or try to find B's on book covers or signs in the classroom.

Printing Words with the Rubber Stamps

Putting letters together to form words is a particularly difficult problem for younger children. The letters C, A, and T have no meaning other than as parts of the alphabet. The combination CAT, however, means more than three letters of the alphabet; it is an English word, but the

meaning of the word has nothing to do with the alphabet. In order to learn to read words, a child must have some understanding that when letters are combined, they stand for more than the letters themselves. They become symbols of sounds in the English language. When someone combines these symbols of sound, he can write any English word.

It usually takes several years for a child gradually to understand and become interested in the symbolic function of letters. The rules of combining letters to form words are not simple. Some sounds are represented by two letters, such as the sound "th." Some individual letters represent more than one sound. For example, the letter "a" stands for three different sounds, as in the words "apple," "ball," and "ape." Some letters are silent (representing no sound) in certain words.

It is not easy to tell when a child is intellectually ready to tackle the concept of words. When playing with the stamps, you should try to present words to a child in a way that runs the least possible risk of overwhelming the child by being too difficult.

One way is to stamp a word yourself and show it to the child. Names are words that have a great deal of meaning for children, and these are good words to begin with. You can stamp your own name, show it to the child, and tell him that this word is your name. If the child shows any interest, you can ask him if he would like to stamp his own name and show him the letter his name begins with. You should be willing to tell him what letters he needs and help him find them; or you can print his name with a

pencil and let him copy it with the stamps. If he is still interested after making his name, you can suggest names of other people in the family or other words that are familiar to him.

If the child shows no interest in words at all, you should allow him to go back to playing with individual letters. It is important that the child not lose interest in letters by being encouraged to deal with words too early.

When you use the Rubber Stamps for the first time with younger children, be sure to use only capital letters (A, B, C ...). Remove all lower-case letters from the box (a, b, c ...) to avoid confusion at the beginning. Also, when stamping letters, be very careful about the position of the letter in relation to the way the child views the activity. If you stamp a "W" so that it looks "right" to you, and if the child is facing you, he will see an "M"! Either sit side by side with the child, or stamp each letter so that it is in the correct position for him to see it as you intended.

Helping Older Children Use the Rubber Stamps

Older children who know that letters are symbols and who understand that letters are combined to form words will probably be interested in printing words with the stamps. Generally, they will not stay interested very long in stamping words at random. Therefore, after an initial period of free exploration, you should suggest activities that provide some kind of goal. The best way to suggest an activity is for you to make an

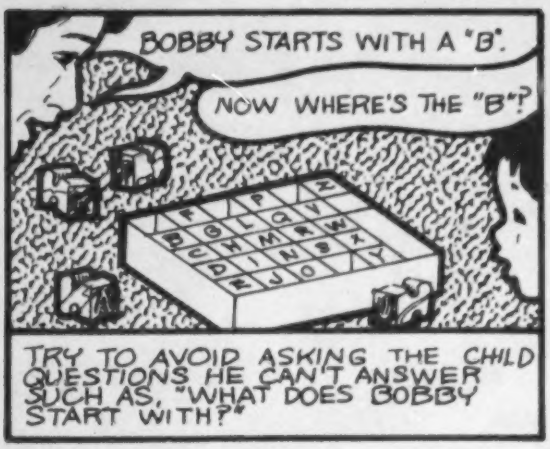
example of it yourself. This approach will eliminate the need for a lot of explanation and will make clear to the child what the goal of the activity is.

If the child is interested in printing names, you could suggest making place cards for the snack table, or a greeting card for someone he knows, or a list of friends and their telephone numbers, or anything else in which names would be used. If the child likes to make labels, you could suggest making labels for photographs or drawings, or labeling body parts or clothes on an outline of the child's body, or making signs or posters. If the child is able to spell, you can suggest playing word games like taking turns adding letters to a word, or making simple cross-word puzzles.

The child will enjoy any of the word activities more if you take part in them, too. If he wants to make a place card, you can also make one; if he wants to print labels, you can print some, too; and if he wants to play a word game, you can take turns with him.

STAMPING NAMES

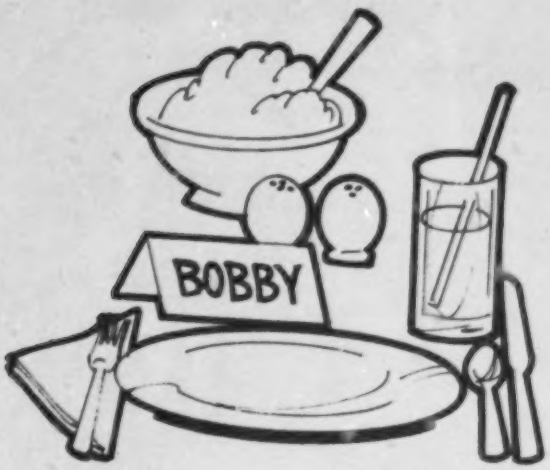
WHAT ARE YOU DOING?
SEE, THAT'S MY NAME, JOANNE.
JOANNE
I WANT TO MAKE MY NAME.
YOU CAN SUGGEST AN ACTIVITY BY DEMONSTRATING IT. IF THE CHILD IS INTERESTED HE WILL LET YOU KNOW.


BOBBY STARTS WITH A "B".
NOW WHERE'S THE "B"?
TRY TO AVOID ASKING THE CHILD QUESTIONS HE CAN'T ANSWER SUCH AS, "WHAT DOES BOBBY START WITH?"

IT DOESN'T LOOK RIGHT.
THAT'S ALL RIGHT, WE CAN STILL READ IT.
BO
THE CHILD MAY LOSE INTEREST IN WHAT HE IS PRINTING IF HE THINKS IT HAS TO BE PERFECT.

OTHER NAME ACTIVITIES

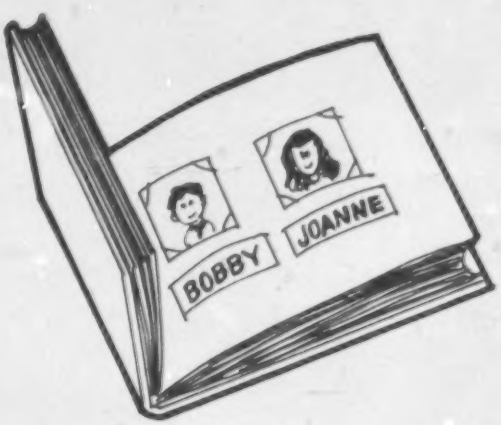
Make place cards for the dinner table.



Make greeting cards for members of the family or other friends.

Make a list of friends and their telephone numbers.

Make labels for family photographs.



STAMPING LABELS

A child may be interested in making labels for objects around any classroom. A treasure hunt is a good way to introduce labeling. Make several notes with the rubber stamps and hide them around the classroom. Each note tells where to go to find the next note. The last note tells where the treasure is.

WOULD YOU LIKE TO GO ON A TREASURE HUNT?
I GUESS SO. WHAT DO YOU DO?
HERE'S A NOTE. IT SAYS 'TELEPHONE' GO TO THE TELEPHONE AND TRY TO FIND ANOTHER NOTE.
TELEPHONE
THE BEST WAY TO EXPLAIN A TREASURE HUNT IS TO SHOW THE CHILD WHERE TO START.
HERE IT IS. WHAT DOES THIS ONE SAY?
I'LL GIVE YOU A HINT. YOU SIT IN IT AND IT RHYMES WITH 'BEAR'.
CHAIR
OH, THE CHAIR! WHICH CHAIR IS IT?
HERE'S THE NOTE!
SOMETIMES YOU CAN GIVE A HINT.
I CAN'T READ THIS ONE.
D-E-S-K SPELLS DESK.
DESK
I FOUND THE TREASURE!

WOULD YOU LIKE TO PLAY A GAME?
YES!
OKAY, HELP ME MAKE SOME LABELS TO PUT AROUND THE ROOM.
MIRROR
MAKE LABELS FOR OBJECTS IN THE ROOM.
LAMP
COUCH
CHAIR
NOW CLOSE YOUR EYES AND I'LL HIDE THIS THIMBLE.
LAMP
REMOVE THE LABEL AND USE IT AS A CLUE.
OKAY, OPEN YOUR EYES AND LOOK AT THIS NOTE.
LAMP
LAMP.
I FOUND IT. LET ME HIDE IT THIS TIME!

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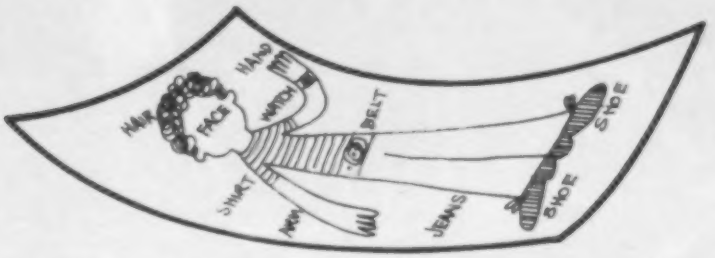
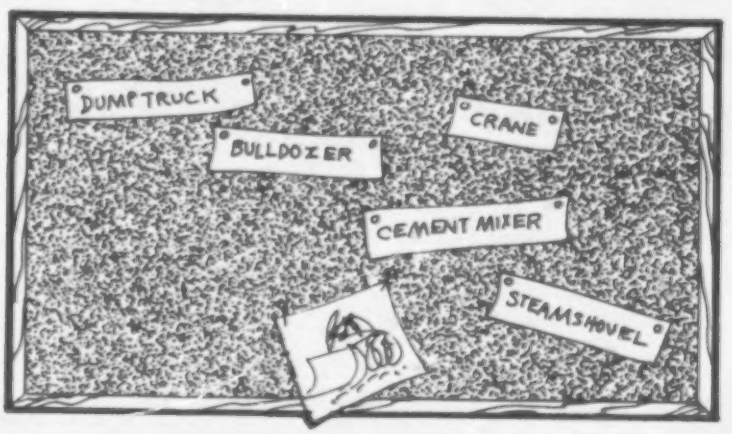
OKAY, I'LL CLOSE MY EYES AND YOU HIDE THE THIMBLE.
PICTURE
CURTAIN
RADIO
DOOR
TABLE
WASTE BASKET
A CHILD MAY NOT HIDE THE THIMBLE WHERE THERE IS A LABEL.
GIVE ME A HINT. WHAT LETTER DOES IT START WITH?
'R'
MAYBE THE REFRIGERATOR...
NO!
I'LL LOOK BEHIND THE RADIO.

OTHER LABELING ACTIVITIES

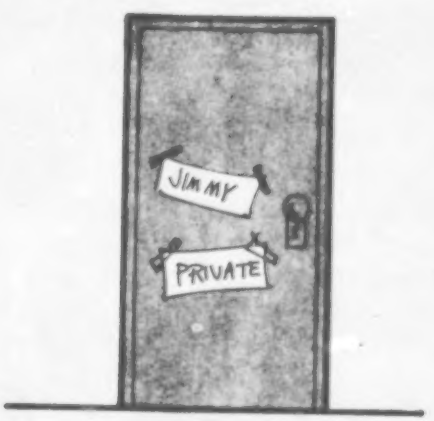
Some children like to label photographs or drawings. One idea you can suggest is to draw the outline of a child's body on a large sheet of paper, let him color the outline, and then help him label parts of his body or clothing that especially interest him.



Another idea is to keep a bulletin board of special words that the child is using a lot in his conversations. For example, he may be talking a lot about a construction project across the street.



Older children often like to make signs to put around the classroom.



WORD GAMES WITH THE RUBBER STAMPS

Almost any word game can be adapted for use with the Rubber Stamps. Although the stamps are not necessary to play these word games, they may make them more appealing for the child. Most word games are appropriate only for older children who have some skill in spelling. You must still be careful not to overwhelm the child with difficult words. Here are examples of three word games.

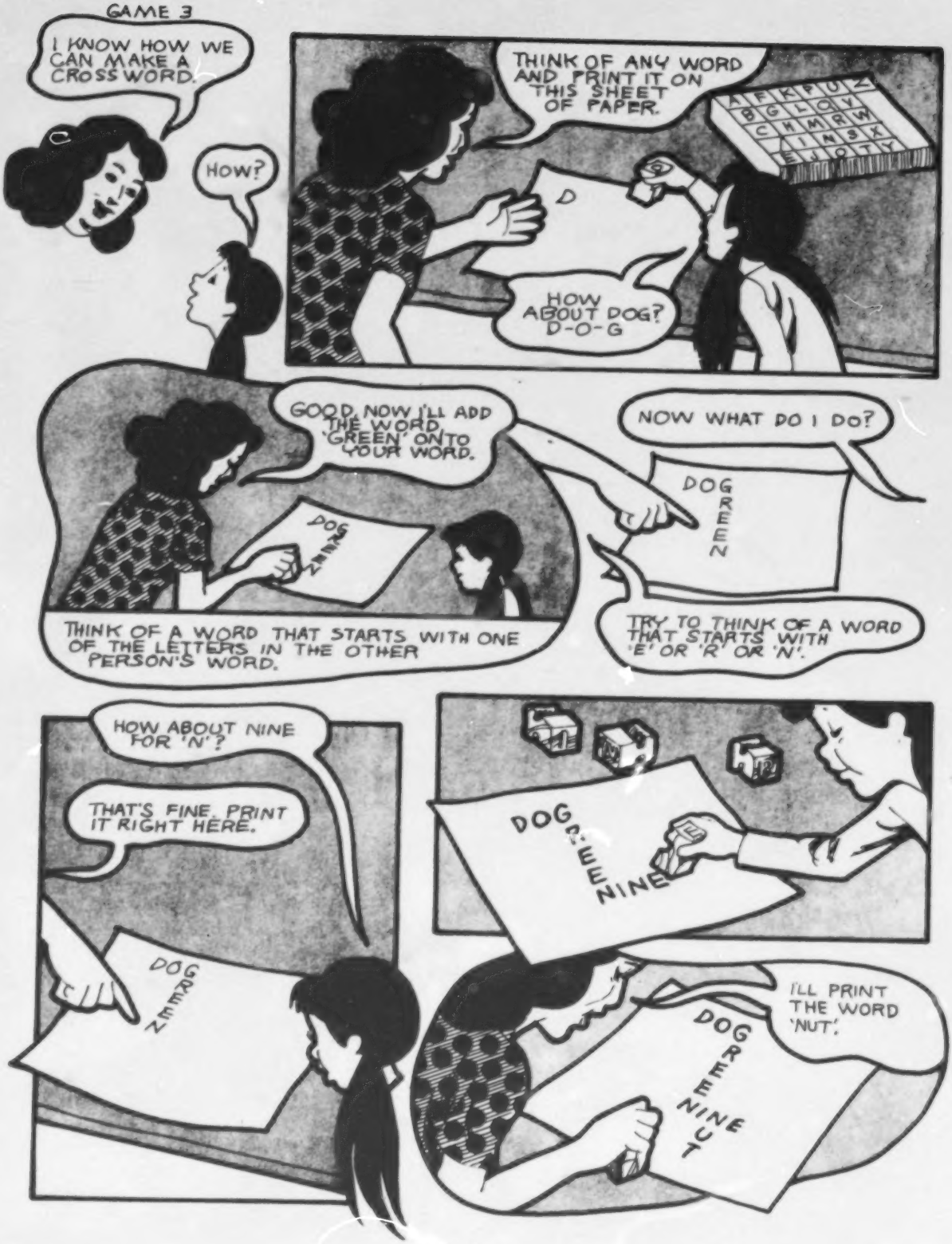
GAME 1

LET'S PLAY A GAME. YOU PRINT ANY LETTER YOU WANT.
THERE. IT'S AN 'R'.
R
OKAY. NOW I ADDED AN 'A'. YOU ADD A LETTER. WE'LL TRY TO SPELL A WORD TOGETHER.
RA
I'LL MAKE RAT. R-A-T.
THAT'S GOOD, BUT WE CAN KEEP GOING. I'LL ADD ANOTHER 'T'.
RAT
I DON'T KNOW WHAT THAT WORD IS.
I'LL ADD AN 'L'.
OH, I KNOW. RATTLE!
LET'S PLAY AGAIN. YOU GO FIRST.
RATTLE

GAME 2

MY WORD HAS FIVE SPACES IN IT.
DOES YOUR WORD HAVE AN 'M' IN IT?
NO.
DOES IT HAVE A "T" IN IT?
YES.
IS THERE AN 'N'?
NO.
HOW ABOUT AN 'H'?
YES, HERE IT GOES.
BIRTH! IS THE WORD BIRTH?
NOPE!
I CAN'T FIGURE IT OUT. IS THERE AN 'E'?
YES.
E T H
EARTH!
YES!

GAME 3


I KNOW HOW WE CAN MAKE A CROSSWORD.
HOW?
THINK OF ANY WORD AND PRINT IT ON THIS SHEET OF PAPER.
D
HOW ABOUT DOG? D-O-G
GOOD. NOW I'LL ADD THE WORD 'GREEN' ONTO YOUR WORD.
DOG
REEN
THINK OF A WORD THAT STARTS WITH ONE OF THE LETTERS IN THE OTHER PERSON'S WORD.
NOW WHAT DO I DO?
DOG
REEN
TRY TO THINK OF A WORD THAT STARTS WITH 'E' OR 'R' OR 'N'.
HOW ABOUT NINE FOR 'N'?
THAT'S FINE. PRINT IT RIGHT HERE.
DOG
REEN
DOG
REEN
NINE
I'LL PRINT THE WORD 'NUT'.
DOG
REEN
NINE
UT

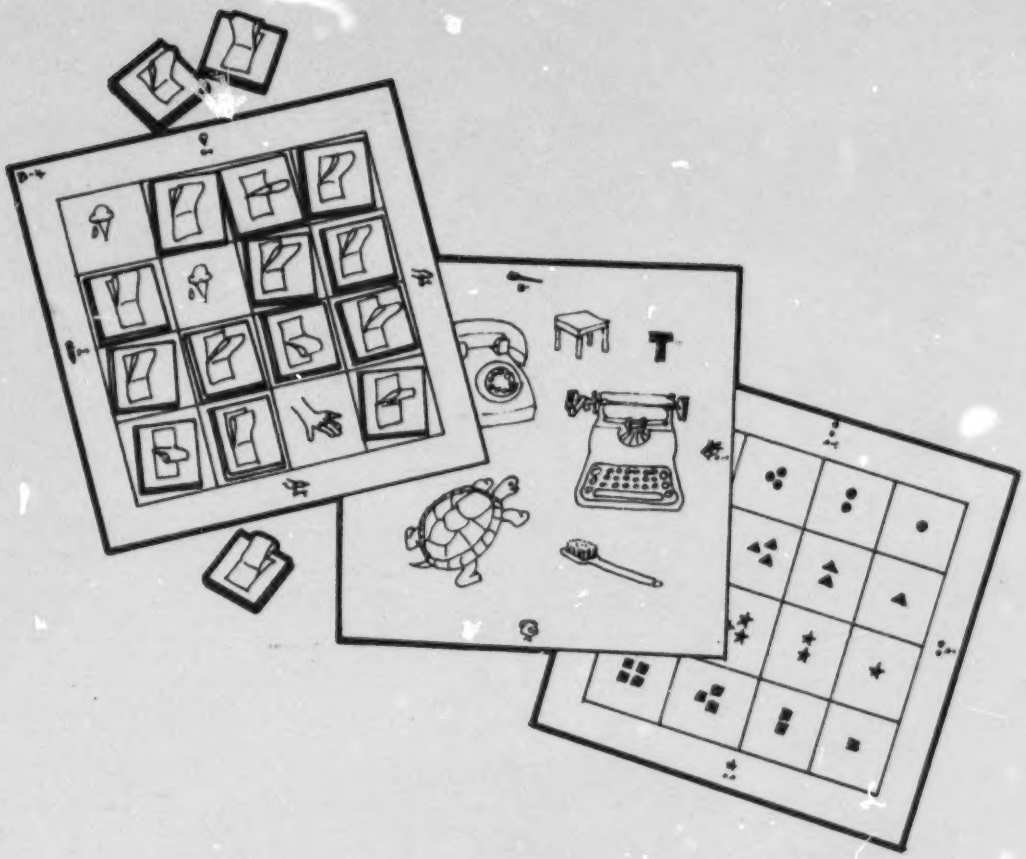
RUBBER STAMPS

When you buy a Superior Rubber Stamp Alphabet Set (No. 4710) from your local school supply dealer, remember to remove the lower-case letters and set them aside. (Using both upper- and lower-case letters will simply confuse young children.) Also remove the numerals and punctuation marks.

On the top of the wooden handle of each upper-case letter stamp, use an indelible marking pen to print that capital letter so that the child can see it when he or she picks up the rubber stamp.

You can make your own storage box for the 26 upper-case letters. Use an empty candy box that has dividers, or any other similar box that you can get from a store that sells small bottles or other items that are shipped in boxes with divided slots or sections. If you want children to put the rubber stamps back into the box in alphabetical order, stamp the letter "A" on the bottom of the top, left slot in your storage box, then "B" -- and so on. You'll need to cover these letters printed on the bottom of the box with a piece of clear acetate or clear pressure-sensitive tape in order to protect them from smudging when the inky rubber stamps are being replaced in the storage box.

PATTERN GAMES



The Pattern Game Is a Logic Game

Each Pattern Game divides a picture or pattern into sixteen equal parts. Each part is concealed by a separate lid and can be seen by removing that lid from the card. There is a logical relationship between the sixteen parts of each picture or pattern; the object of the game is to discover this relationship by uncovering as few parts as possible.

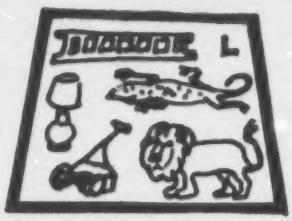
The main purpose of the Pattern Games is to give a child experience in solving logic problems. As he uncovers a few parts of a picture, he may form a hypothesis, or logical guess, about the rest of the picture or pattern. He may test his hypothesis by picking up certain lids, depending on the kind of game he is playing. Finally, he may recognize the picture or pattern and be able to predict all the remaining hidden parts.

In order to form a hypothesis, a child must use his powers of perception and analysis. Sometimes he must recognize an object by seeing only part of it. Sometimes he must count the number of objects in a picture in order to find two matching pictures. Other times he must anlayze a picture according to other attributes, such as color, size, shape, and function.

With any of the patterns, the reasoning a child uses will depend on his stage of mental development. Younger children often need to see all or most of a picture or pattern before they recognize it. Older children are better able to predict hidden parts of a picture or pattern because they can analyze the relationship between the parts that are visible.

There are three kinds of backgrounds that are used with the Patten Games: (1) puzzle pictures, (2) design patterns, and (3) matrix patterns. With each kind of card, the sixteen parts of the picture or pattern are related to each other in a different way. Therefore, different strategies are necessary for each kind of card.

Puzzle Pictures



Each of these cards shows four or five common objects that are related in some way. When a child removes one of the lids, he sees only part of one object. In order to recognize the object, the child must try to relate the part that he sees to the whole picture that is hidden. By using his previous experience as a guide, a child can logically reason what the hidden picture may be. As he removes more lids, he will discover whether or not his logical guess was correct. You should remember that a child who has no previous experience with a certain object will not be able to use logic to solve the problem.

Often, a younger child removes all sixteen lids as quickly as possible and looks at the pictures. In order to slow down the game, and encourage

the child to guess the picture when it is partly hidden, you can suggest taking turns removing one lid at a time. However, some younger children will lose interest in the game if they are not allowed to remove all the lids immediately. You should accept this behavior. Perhaps the child is too excited to take time to guess a partly hidden picture. Or perhaps the child is not willing to take a risk, and feels threatened when he is asked to guess a hidden picture.

After a younger child has seen all the pictures on a card, he still will find a memory game challenging. You can replace the lids on the card, rotate the card several times, and ask the child to find his favorite picture. As the child removes the lids, he again becomes involved in trying to identify an object by seeing only part of it. The problem is easier because he knows the name of the object, and he may remember its position on the card. However, if the box is rotated, the problem usually is not too easy for a younger child. The position of the picture, in relation to the child, has changed. It may be on the other side of the box and upside down. This kind of spatial change is not easy for a younger child to understand.

Older children are more likely to make guesses as they remove the lids. They are better able to analyze the relationship between part of a picture and the whole picture. They also may enjoy a memory game after they have seen all the pictures, although the game probably will be very easy for them.

All the objects on each card are related. The names of the objects begin with the same letter. For example, one card shows only objects that begin with the letter "T," another shows objects that begin with "B," and so forth. The letter is always printed in the upper right corner of the card. If a child is learning beginning phonics, you can use the puzzle pictures as a phonics game. You and the child can take turns removing covers from the pictures until he (or you) can guess the letter in the corner.

Design Patterns

Each design pattern consists of sixteen separate pictures that form eight matching pairs. The pairs are arranged in a symmetrical design. The object of the game is to discover the design. The same design is not used on all the cards. Therefore, a child must develop a new hypothesis each time he plays with a different card.

A younger child usually needs to remove most or all of the lids before he sees the pattern. When playing with a younger child, you should take turns with the child in removing all the lids. As the lids are removed, you can talk with the child about any pictures that especially interest him. Some pictures may produce conversations about colors or shapes; other pictures may lead to conversations about categories of similar objects; or the child may be interested in counting the number of objects in some pictures. You should respond to the child's comments without pointing out elements of the pictures or the design that the child has not yet seen.

In order to help a younger child discover the design, you can play a memory game. After all the lids have been removed, you can ask the child to close his eyes. Then you can put the lids back on two different pictures. If possible, the covered pictures should be ones in which the child has shown special interest. When the child opens his eyes, you can ask him to find one of the pictures that is covered.

If a child is able to play the game with two lids on the card, you gradually can increase the number of lids, each time asking the child to look for a certain picture. Each time the child plays, he will become more familiar with the pattern. Eventually, he may realize that the pairs of pictures are arranged in a design. Once he discovers the design on one card, he will be more likely to look for a design on the next card.

This activity is really an exercise, or test, if you always set up the problem and ask the child to solve it. If the child does not spontaneously offer to be the "adult" and set up the problem, you should ask him if he wants to cover some of the pictures while your eyes are closed. The exercises suggested in these instructions have been designed to be back-and-forth activities, with the adult and the child taking turns in some way or other. If a back-and-forth game does not evolve, it is likely the child does not like the activity.

An older child will be interested in trying to figure out a design pattern before he sees the entire card. We suggest playing a game like "concentration." Players take turns picking up two lids at once. If

the pictures that are revealed are identical, the player keeps the lids. If they are not identical, the lids must be replaced on the card. Initially, the players never get to see more than two parts of the pattern at a time. They must remember what they have seen and use that information to find an identical pair. As pairs are found, the pattern is gradually exposed and it becomes easier to find the remaining pairs.

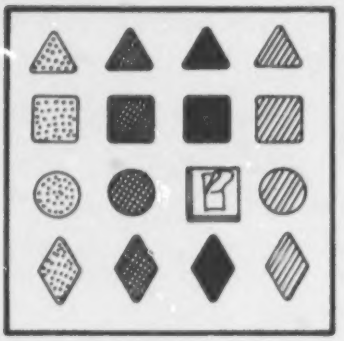
Matrix Patterns

In a matrix pattern, each of the sixteen parts of the card shows a different figure or picture. The four figures in each row are like each other in some way, and the four figures in each column are alike in some way. Therefore, each row and each column consists of a category of similar figures. In the example above, the figures in the first row are all triangles; in the first column, the figures are all green (shown here as a dotted pattern).

A matrix pattern shows how each figure can belong to two categories at the same time. As part of a row it belongs to one category, and as part of a column it belongs to another. Once the principle of a matrix is understood, a hidden part of the pattern can be predicted because it is always the intersection of two categories. In the example above, the missing figure is at the point where the row of squares intersects with the column of red (shown here as solid black) figures. Therefore, the missing figure would be a red square.

The matrix patterns are even more difficult for a younger child than the design patterns. He may see that all the figures in a row are alike in some way, but he cannot usually analyze for himself exactly how they are alike and how they are different.

Research with young children has indicated that they are limited in their ability to guess a missing figure in a matrix pattern. For example, suppose a young child is asked to guess the figure that is hidden in the following pattern:



He may choose any figure that is like one other figure in the pattern. He might pick a square because it is under the red (solid) square, or he might choose a blue (cross hatched) circle because it exactly matches the blue circle next to it. He might pick any red figure because the missing one is in the column of red objects, or he might pick any circle because it fits in with the row of circles. He is unlikely to realize that the missing figure must fit both column and row requirements and thus should be both red and a circle.

If a younger child sees an entire matrix pattern with only one or two figures covered, he may be able to identify the hidden parts by guessing what looks right. In other words, when he can see nearly all the pattern he can sometimes use perception to solve the problem.

With a younger child you should use the matrix cards in the same way as the design patterns. Let him randomly uncover the pattern and look at it. You can then cover two figures or pictures while the child's eyes are closed. When the child opens his eyes, you ask him to find one of the figures. If the child finds the game too easy, you can cover an entire row and ask the child to find one picture. Again, it is important to allow the child to take a turn setting up the problem.

When playing with a younger child, you should be careful to avoid asking him to put his predictions into words. It is much easier for the child to follow the direction, "See if you can find the blue circle," than it is for him to answer the question, "What do you think is under this lid?" Children should not be expected to put their predictions into words until they are older and better able to analyze matrix patterns.

An older child can be introduced to the matrix patterns by putting all the lids on the card and letting him try to find the figure shown outside the border at the bottom of the card. After he has investigated the patterns for a while in this way, you may want to suggest some of the other games and exercises in the instructions.

The main purpose of the Pattern Games is to help a child discover a logical pattern by using his own reasoning ability. If you tell a child how a matrix pattern is organized, you will eliminate the point of the game and spoil the fun of playing. An older child finds it relatively easy to understand the pattern once the right question is asked or the solution to a matrix problem is demonstrated. For example, if you ask a child, "How are all the shapes in this row alike?" he can usually answer the question easily and use the answer to solve a matrix problem. If you demonstrate the solution by saying something like, "This is a red square because it is in the red row and in the column of squares," an older child can quickly understand the matrix pattern. The point of the game is to wait until a child asks himself the right questions and can demonstrate for himself the solution.

If the child is younger, telling him the principle of a matrix pattern is not likely to make sense to him. It may confuse him. Even if he partially understands the explanation, it may make him anxious because he will feel he must succeed on the next matrix problem. With a younger child, it is better to begin with memory games and to progress to logic games only after it is clear that the child will be able to figure out a matrix pattern for himself.

The Puzzle Patterns Can Be Used as a Game or as an Exercise

With both the design and matrix patterns, a game is quite different if it is started with all of the lids on the card or with only two lids on the card. If all the lids are on the card, players can take turns removing them one at a time and trying to figure out the pattern. This way of playing is an authentic game. Since it involves elements of chance and skill, it is exciting, especially if several children who are about equal in ability are playing together. It can also be very competitive and frustrating for a child who cannot figure out the pattern.

On the other hand, if a game is started with only two lids on the card, the problem is much simpler to analyze. A child can see most of the pattern and may be able to guess the hidden parts on the basis of perception rather than analysis. This way of playing is less exciting, however. Since the problem must be set up by one player and solved by another player, it is therefore more like an exercise than a game. It should be continued only if it develops into a back-and-forth activity.

You can encourage a child to try both modes of playing. As an adult, you may favor the exercises over the games. You may think that a child is wildly guessing when all the lids are on the card and that he is not learning anything at all. You may feel more comfortable using an exercise because it seems more like a traditional "teaching" role. When you are playing a game, your role is more difficult to define. Should you play the game honestly, using your adult knowledge to make the best predictions you can? This method has the advantage of showing

the child that there is a pattern, but it may also make him feel inferior. Or should you pretend not to know the pattern? This gives the child some breathing room, but he may feel tricked when he eventually discovers that you have been making mistakes on purpose.

We believe each adult should decide for herself which strategy to use in a particular situation. Some adults may try to avoid the problem by encouraging several children to play the games by themselves. This method may be appropriate, but it does not necessarily eliminate frustration because a child can be thoroughly discouraged and confused by another child who has more ability and is more aggressive.

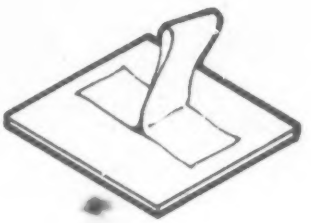
Children Will Memorize the Cards

Whether a game is played with most of the lids on or off, children will tend to memorize a card and play by memory rather than by using logic. With the puzzle pictures, memorization is almost immediate. The design patterns will take a little longer, and the matrix patterns which show abstract objects (circles, triangles, etc.) will be hardest to memorize because the card can be turned and the pattern will appear in a different perspective. Especially with younger children, turning the card will create a completely new problem. Eventually, however, the only way to counter the effect of memorization is to make new cards for your set. Two blanks have been provided to help you get started on some "homemade" cards.

The puzzle pictures, which are the first to be memorized, are also the easiest to make. Children, especially older ones, enjoy drawing pictures to put on cards, or magazine pictures can be cut out and glued on one blank cards. For a child who is learning the alphabet, large letters can be drawn on the blank cards. Design patterns can be made by drawing geometric shapes or simple pictures on the blank cards. An easy way to make matrix patterns is to draw faces on the blank cards. The instructions for playing matrix games also explain how to make number matrix patterns. You should realize that number matrix patterns are harder to understand than picture matrix patterns because they do not present a strong visual pattern. Only older children who can easily solve picture matrix problems are likely to be interested in number matrices.

INSTRUCTIONS FOR PLAYING WITH THE PATTERN GAMES

In addition to the sets of Pattern Game cards, you will need a minimum of 16 homemade "lids" measuring 1 7/8" x 1 7/8" each. To make your own lids, simply cut up tagboard or cardboard into squares the same size as the "boxes" on the cards. Then attach to each lid a piece of masking tape to make a little handle for the children. If you cut the squares from a single sheet of tagboard by using a heavy paper cutter, you'll get a perfect fit that will completely cover the entire design when you want it concealed.



Note: Many of the illustrations shown in the following pages merely indicate spaces where pictures would appear on the actual cards.

HOW TO PLAY WITH YOUNGER CHILDREN

Puzzle Pictures

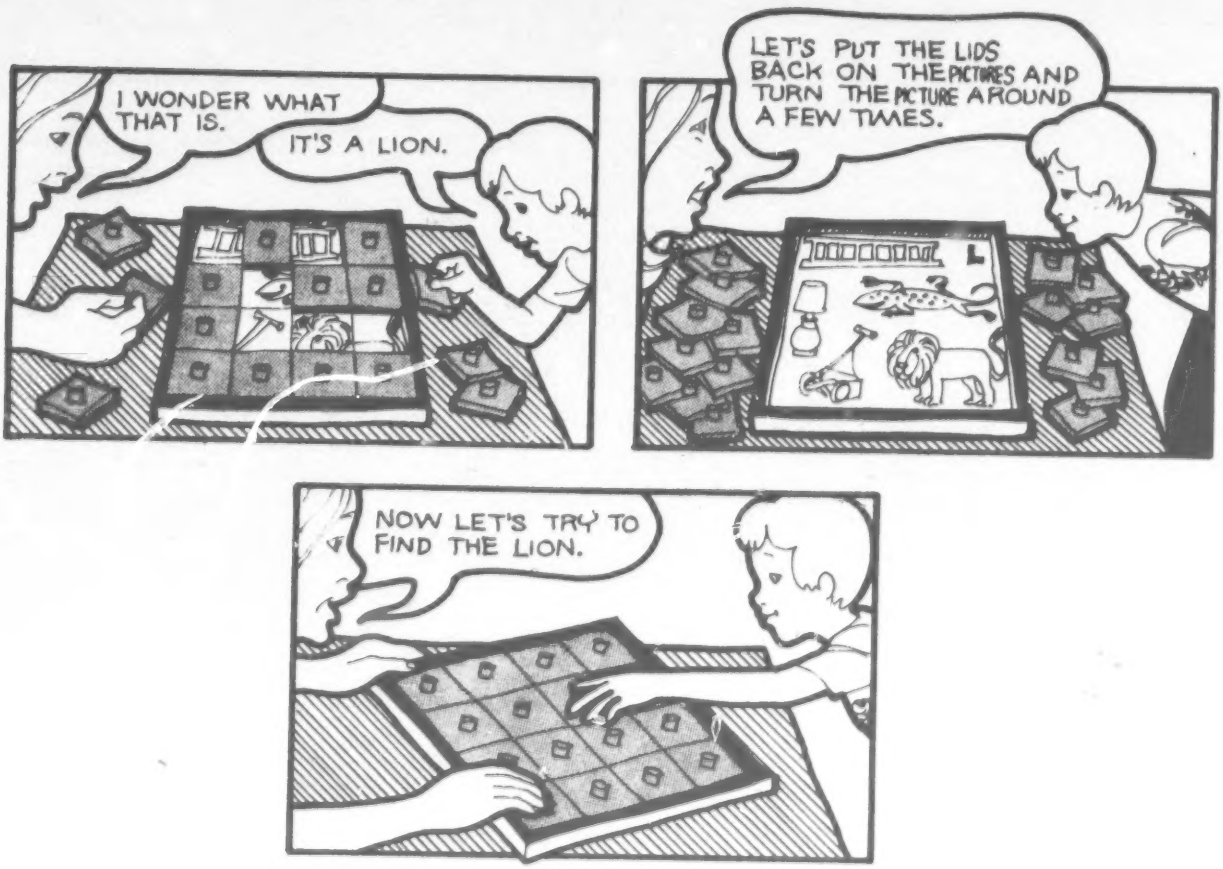
1. Choose a card that shows four or five drawings of common objects. (There will be a letter in the upper right corner.)

2. Take turns with a child, removing one lid at a time from the card. When part of a picture is uncovered, encourage the child to guess the name of the object.

3. After the child has seen the pictures on a card, play a memory game. Put the lids back on the card, turn the card around several times, and then look for one of the pictures.

4. Play the same way with the other puzzle picture cards.

Variations: If a child is learning beginning sounds, play this game. Leave the lid on the letter in the upper right corner. Tell the child there is a letter under that cover. Take turns removing the other covers until the child wants to guess the hidden letter. Then let him check to see if he is right.


I WONDER WHAT THAT IS.
IT'S A LION.
LET'S PUT THE LIDS BACK ON THE PICTURES AND TURN THE PICTURE AROUND A FEW TIMES.
NOW LET'S TRY TO FIND THE LION.

Design Patterns

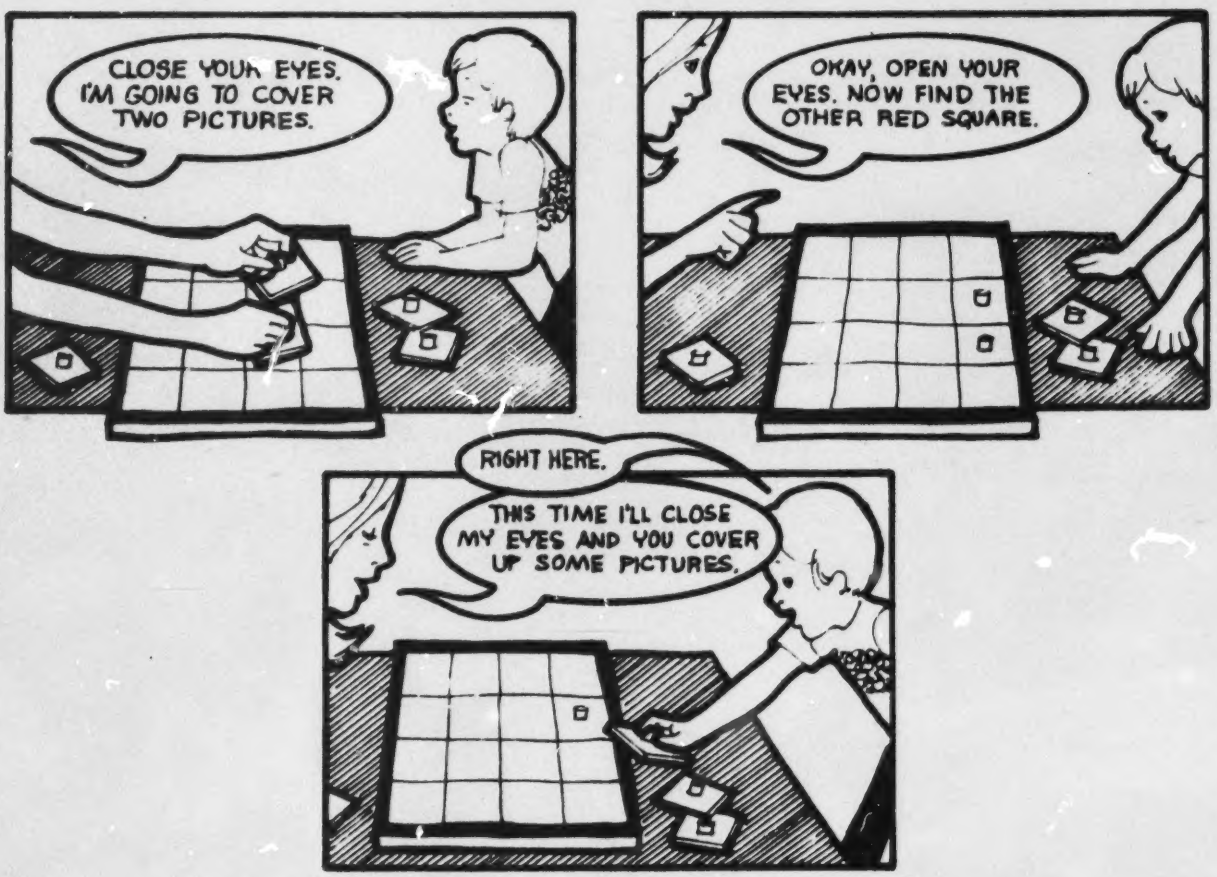
1. Choose a card that shows eight pairs of pictures. Take turns with a child removing one lid at a time from the card. Talk about the colors and pictures you find.

2. When all the lids are removed, ask the child to close his eyes. Then put two lids on the card. Cover two pictures that are different.

3. Let the child open his eyes and ask him to find one of the pictures you covered.

4. If the child is able to find a picture when there are only two lids on the card, try increasing the number of lids. Each time ask the child to find a certain picture.

5. Encourage the child to take a turn setting up the problem for you while your eyes are closed.


CLOSE YOUR EYES. I'M GOING TO COVER TWO PICTURES.
OKAY, OPEN YOUR EYES. NOW FIND THE OTHER RED SQUARE.
RIGHT HERE.
THIS TIME I'LL CLOSE MY EYES AND YOU COVER UP SOME PICTURES.

Matrix Patterns

1. Choose a card that shows a matrix pattern and put the lids on it.

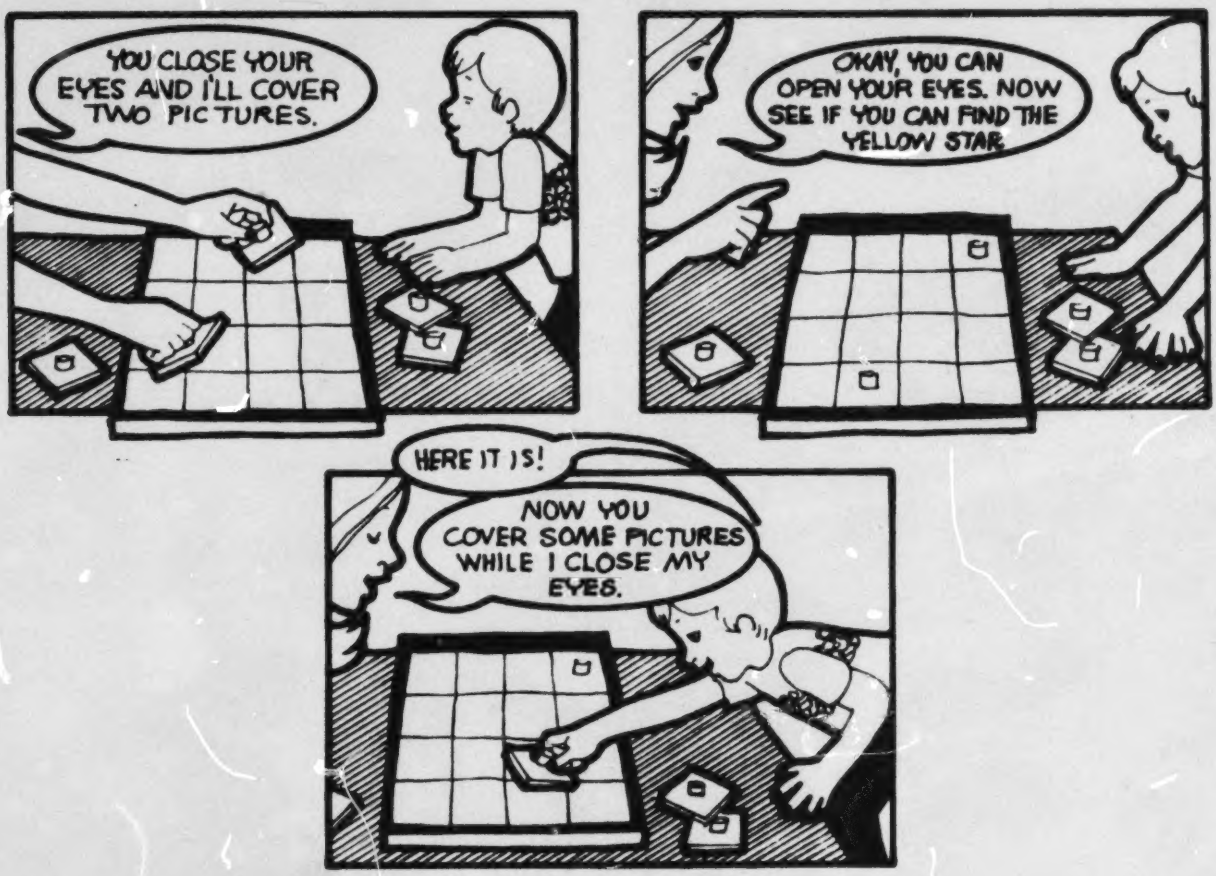
2. Take turns with a child, removing one cover at a time from the card. Talk about the shapes, colors, and pictures you find. For example, when you uncover a red triangle, you might say, "Oh, another triangle, but this one is red."

3. When all the lids are removed, ask the child to close his eyes. Then cover two pictures.

4. Turn the card around several times. Ask the child to open his eyes and find one of the pictures that is covered.

5. If you wish to make the game harder, cover more than two pictures, perhaps an entire row or column.

6. Let the child set up the game for you. He may give you a hard problem by covering up all the pictures.


YOU CLOSE YOUR EYES AND I'LL COVER TWO PICTURES.
OKAY, YOU CAN OPEN YOUR EYES. NOW SEE IF YOU CAN FIND THE YELLOW STAR.
HERE IT IS!
NOW YOU COVER SOME PICTURES WHILE I CLOSE MY EYES.

HOW TO PLAY WITH OLDER CHILDREN

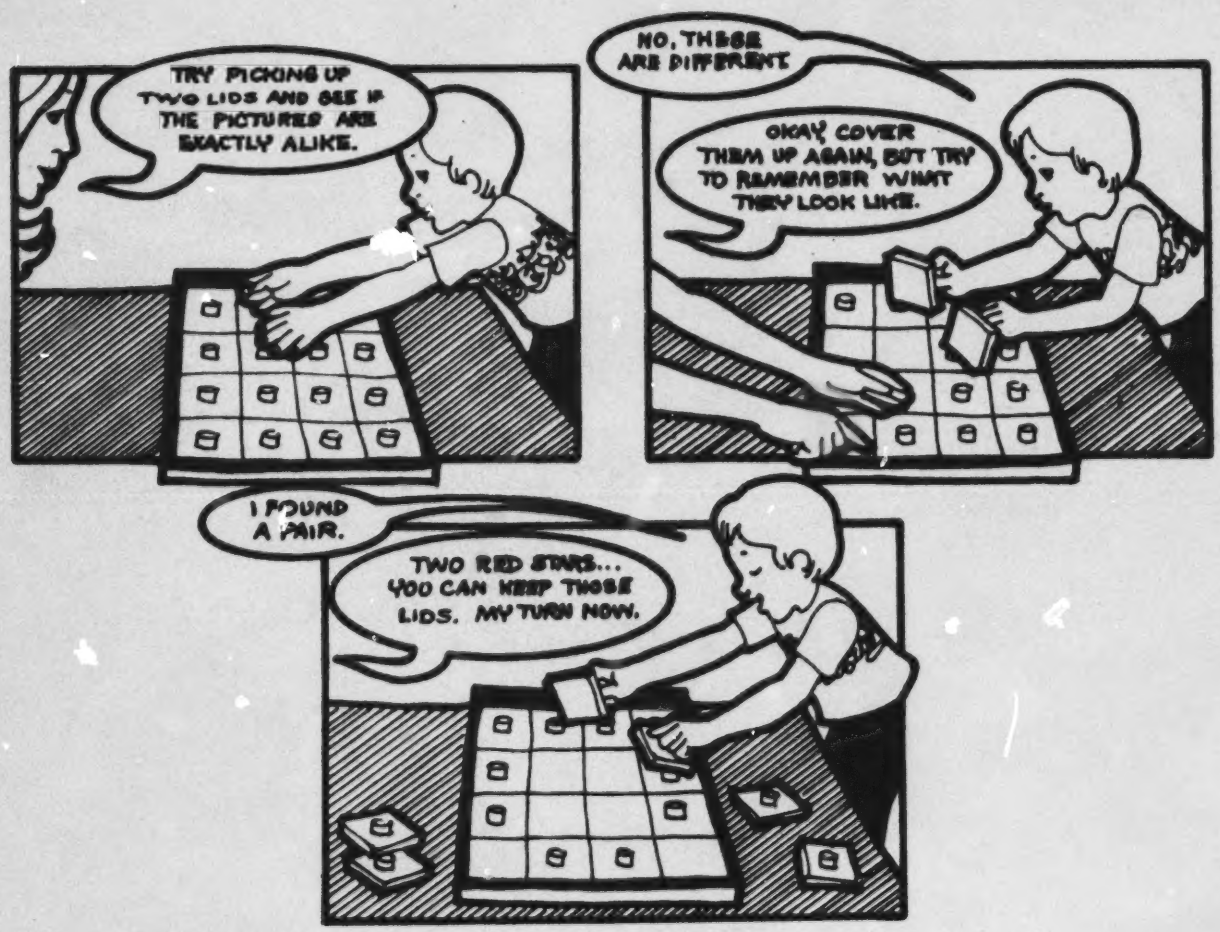
Design Patterns

1. If possible, play with at least three people. One person chooses and covers the card; the other two people play the game.

2. Choose a card that shows eight pairs of pictures. All the lids should be on the card.

3. Take turns picking up two lids at a time. If you find two identical pictures, you can collect the two lids. If you find two different pictures, put the lids back on the card.

4. Continue playing until all eight pairs of pictures have been found.

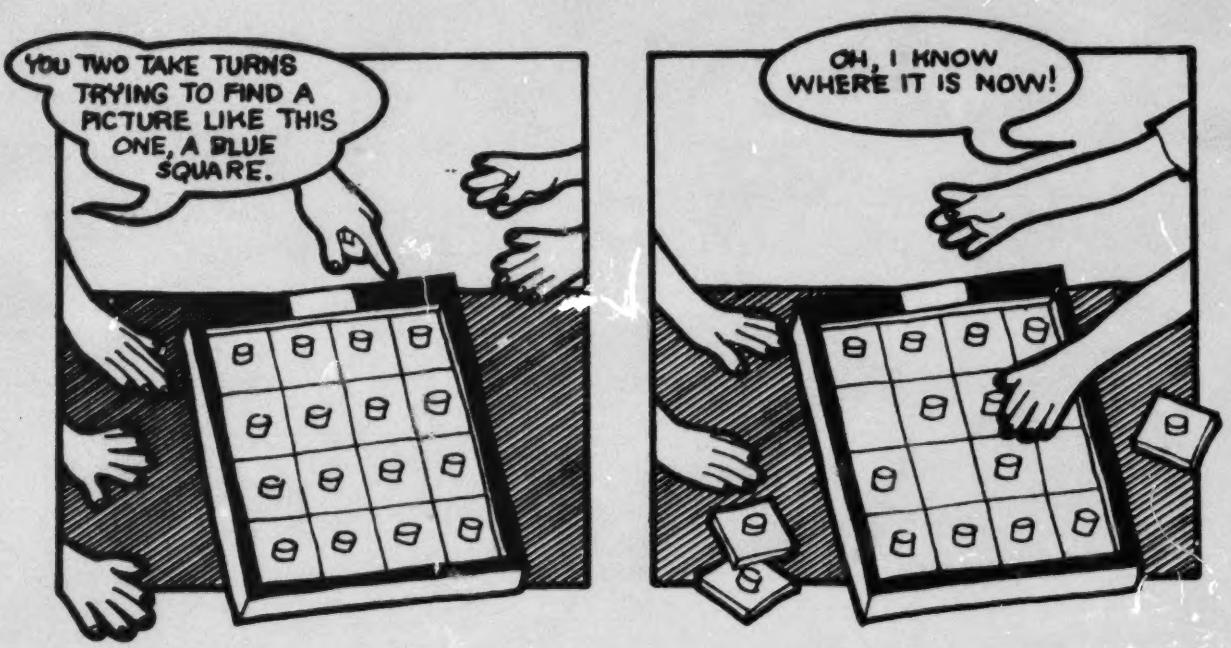

TRY PICKING UP TWO LIDS AND SEE IF THE PICTURES ARE EXACTLY ALIKE.
NO, THESE ARE DIFFERENT
OKAY, COVER THEM UP AGAIN, BUT TRY TO REMEMBER WHAT THEY LOOK LIKE.
I FOUND A PAIR.
TWO RED STARS... YOU CAN KEEP THOSE LIDS. MY TURN NOW.

HOW TO PLAY WITH OLDER CHILDREN

Matrix Games

This game is especially suited for several children playing by themselves.

1. Choose a card that shows a matrix pattern. The whole card should be covered by the homemade lids.
2. Tell a child to look at one of the four small drawings outside the borders of the card. The object of the game is to find the shape or picture shown in that drawing.
3. Take turns removing one lid at a time until someone finds the shape or picture.
4. Next time, rotate the card and choose a different picture to look for.



HOW TO PLAY WITH OLDER CHILDREN

Matrix Games

1. Choose a matrix pattern and put all the lids on it.

2. Pick up any two lids that are not in the same row or column.

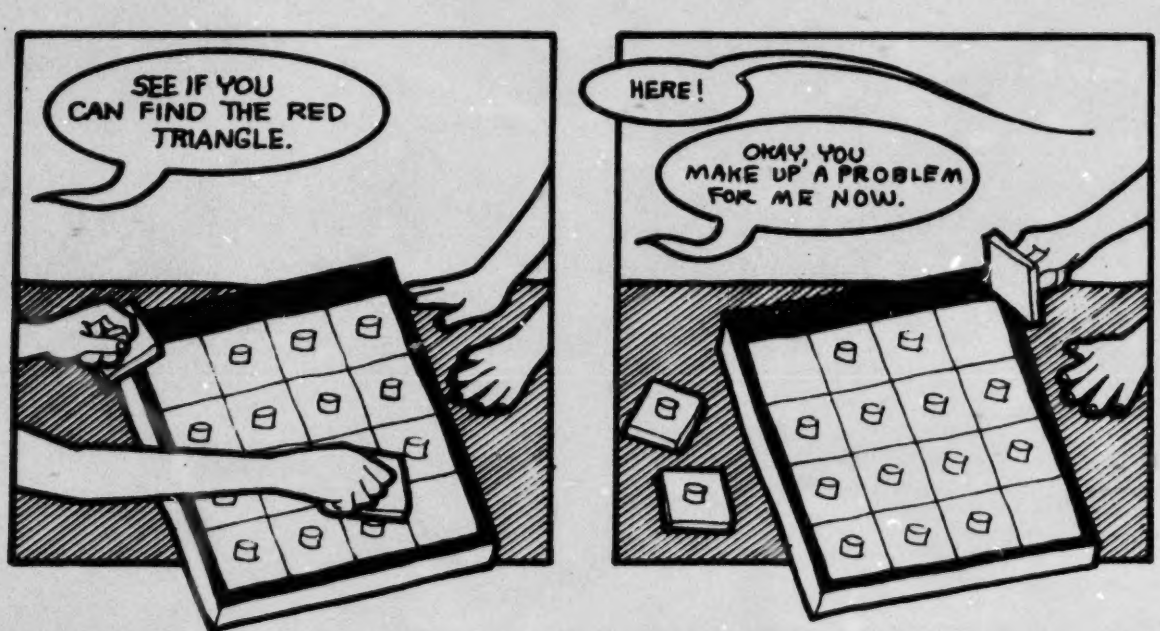
3. Make up a problem for a child that uses the two uncovered pictures as clues. For example, if you uncover the green triangle and the red star, say to the child, "Find the red triangle." By using the green triangle and the red star as clues, the child can figure out where the red triangle might be.

4. After the child solves the problem you have given him, let him remove any two lids and make up a problem for you. The pictures he uncovers may not be very good clues for solving the problem he gives you. For example, he might uncover the red triangle and the blue triangle and ask you to find the green square. Try to solve his problem, even if you have to guess.

5. Continue taking turns and playing the same way.

Variation:

One player makes up a problem for both players to solve. For example, one player might suggest finding all the red shapes, or finding all the triangles.



HOW TO PLAY WITH OLDER CHILDREN

Matrix Games

This game is good for two or more older children playing by themselves.

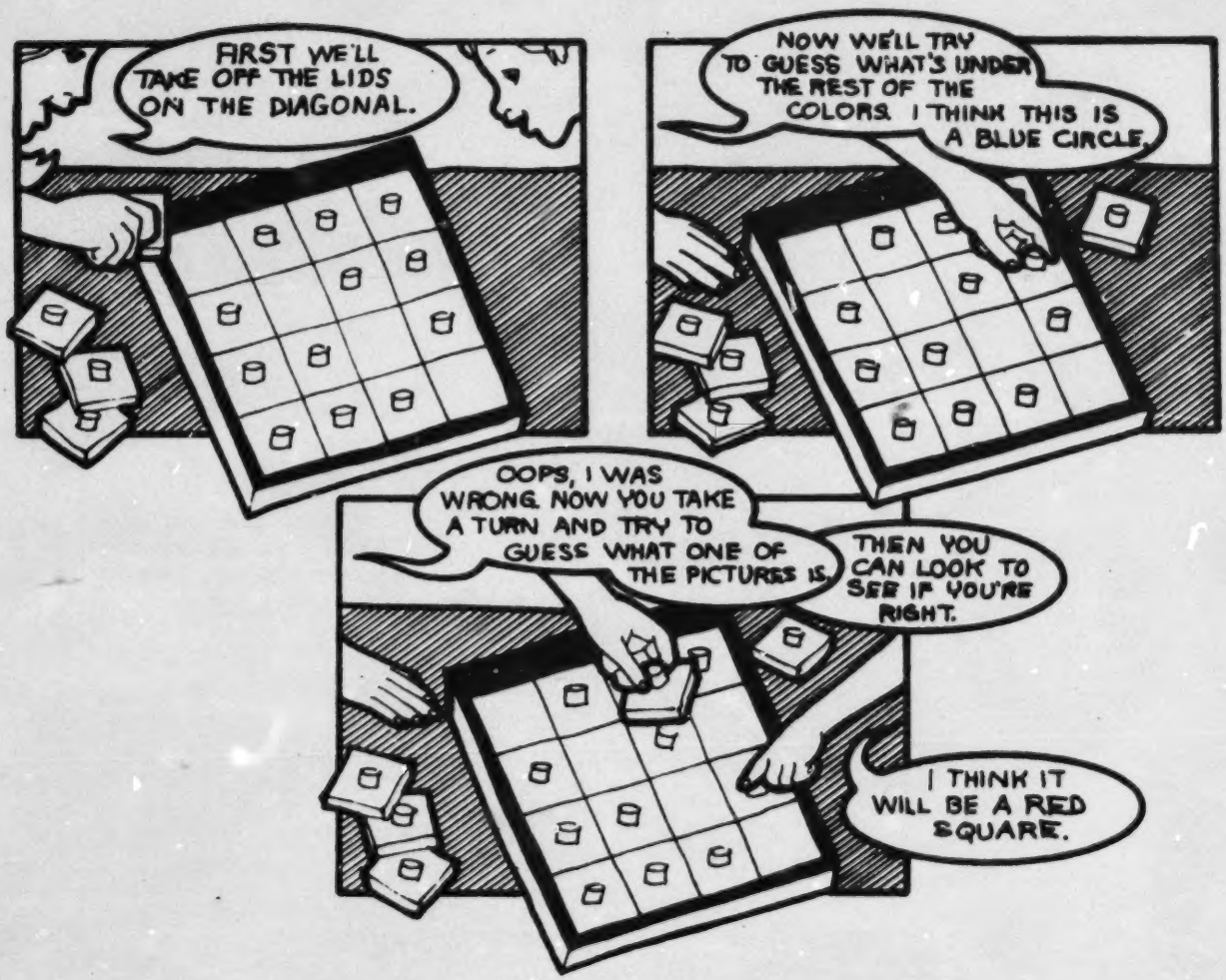
1. Start with all the covers on the card except four covers that form a diagonal.

2. One person takes the first turn and tries to predict what is under a lid. Then he removes the lid. If his prediction is right, he takes another turn. If he is wrong, another person takes a turn.

3. Continue playing until all the lids have been removed.

Variations: (a) Start the game by covering only a few pictures.

(b) Start the game with all the lids on the card.

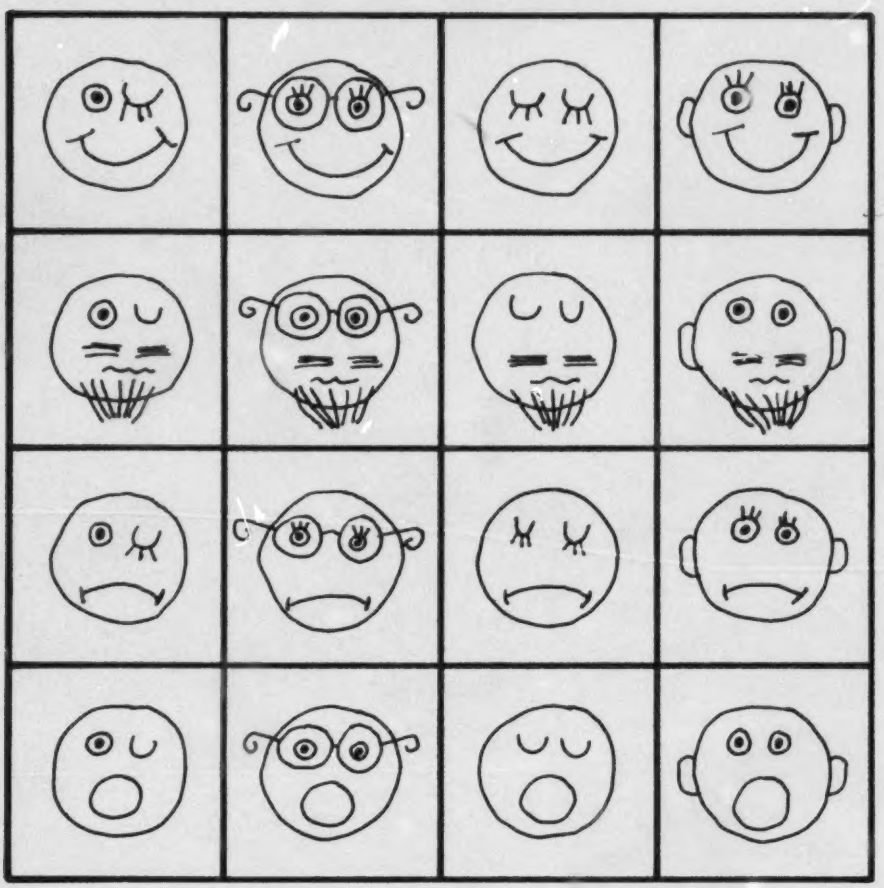

FIRST WE'LL TAKE OFF THE LIDS ON THE DIAGONAL.
NOW WE'LL TRY TO GUESS WHAT'S UNDER THE REST OF THE COLORS. I THINK THIS IS A BLUE CIRCLE.
OOPS, I WAS WRONG. NOW YOU TAKE A TURN AND TRY TO GUESS WHAT ONE OF THE PICTURES IS.
THEN YOU CAN LOOK TO SEE IF YOU'RE RIGHT.
I THINK IT WILL BE A RED SQUARE.

MAKING YOUR OWN CARDS FOR PATTERN GAMES

1. You can make Puzzle Pictures by drawing on the blank cards or by gluing magazine pictures on them.

2. You can make Design Patterns by drawing simple shapes or pictures on the blank cards.

3. One idea for making Matrix Patterns is to draw sixteen blank faces on a card. Then add a different characteristic (hair, eyes, smile, frown, beard, ear, nose) to all the faces in each row and column. In the example below, all the faces in the first row are smiling, in the second row all have a beard; all the faces in the first column have one eye closed, in the second column all have eye glasses, and so forth.



You can also make number matrix patterns:

Counting by 2's

Start with the top row: 2 4 6 8

To make the second row, add 2 to each number in the first row: 4 6 8 10

To make the third row, add 2 to each number in the second row: 6 8 10 12

To make the fourth row, add 2 to each number in the third row: 8 10 12 14

Now put all four rows together:

2	4	6	8
4	6	8	10
6	8	10	12
8	10	12	14

Now, if you look at any row or column above, you will be counting by 2's.

Counting by 1's

1	2	3	4
2	3	4	5
3	4	5	6
4	5	6	7

Counting by 2's

1	3	5	7
3	5	7	9
5	7	9	11
7	9	11	13

Counting by 3's

3	6	9	12
6	9	12	15
9	12	15	18
12	15	18	21

Counting by 3's

2	5	8	11
5	8	11	14
8	11	14	17
11	14	17	20

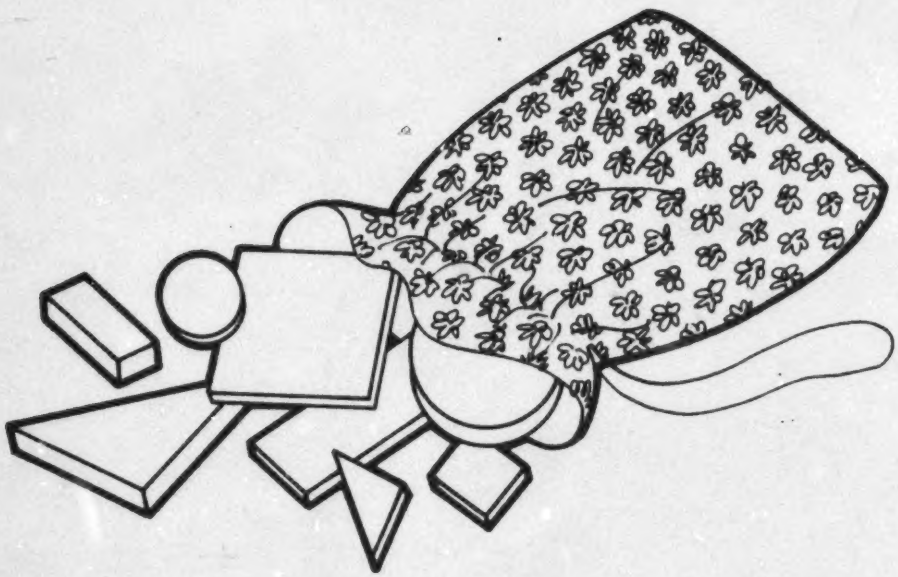
Counting by 4's

4	8	12	16
8	12	16	20
12	16	20	24
16	20	24	28

Counting by 5's

5	10	15	20
10	15	20	25
15	20	25	30
20	25	30	35

LOGIC BLOCKS



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Purpose of the Logic Blocks

The purpose of the Logic Blocks is to help a child learn to analyze an object according to its attributes. The blocks vary in the attributes of color, shape, size and thickness, but they represent a simplified situation because the variations are limited to a few obvious differences. There are only three colors, five shapes, two sizes, and two thicknesses. Therefore, it is relatively easy to identify and discuss the attributes of each block and to sort the blocks according to similar attributes.

Parents should remember that it takes several years for a child to develop the ability to analyze attributes and to categorize. Playing with the Logic Blocks is no more than one small step in that process of development.

How Younger Children Play with the Blocks

As a younger child plays with the Logic Blocks, he often groups similar blocks together. He may make a simple picture that includes blocks that are the same shape and/or size. For example, the wheels of a car may all be small circles or a Christmas tree may be made of triangles. Sometimes a child may make a symmetrical design that includes several blocks of the same shape and size.

Although the most common grouping seems to be blocks that are the same shape and size, many other combinations of blocks may occur during a child's free play. The blocks can be alike in shape, size, thickness, color, or any combination of these attributes:

Alike in one way	Alike in two ways	Alike in three ways
Same color	Same color and shape	Same color, shape and size
Same shape	Same color and size	Same color, shape and thickness
Same size	Same color and thickness	Same color, size and thickness
Same thickness	Same shape and size	Same shape, size and thickness
	Same shape and thickness	
	Same size and thickness	

Although a younger child puts similar blocks together as he plays, he usually does not make groups of blocks that are completely logical. For example, a child may make a row of blocks in which the first two blocks are both red; the second and third blocks are both circles; and the third and fourth blocks are both yellow. The row is not one logical group, but a sequence of three similar pairs.

Talking to Children About How the Blocks Are the Same or Different

Rather than pushing a younger child into sorting the blocks in some logical fashion, you can point out similarities in the blocks as the

child plays. The child may see that certain blocks are similar, but he probably does not understand exactly how they are alike. In other words, he feels that the blocks look right together, but he does not analyze their similarity. You can describe how the blocks are alike--"These blocks are the same shape." "These squares are the same color." "All the blocks are triangles." "All the blocks are thick except this one."

Describing the blocks to a child as he plays with them may help him develop his ability to recognize and label such similarities. This is a gradual process, however, that takes several years. A child must progress from labeling the blocks with a simple label like "red" to using a complicated label like "big, red, thin triangle." He must learn the concept of an attribute: that red, blue, and green are colors; that triangle and square are shapes; and that big and small are terms of size. Finally, he must learn the concept of same and different. You should certainly not expect a child to learn all these levels of description quickly.

Playing Labeling and Comparison Games with Younger Children

The games described in the instructions for younger children are designed to help a child learn to label individual blocks and to make simple comparisons of two or three blocks. In order to be as interesting as possible, each of the games involves hiding blocks in a bag and then trying to find them again. The bag, though not necessary for any of the games, makes them more appealing.

The simplest game is to try finding two blocks that feel the same ("Matching Games"). As mentioned above, children often match blocks that look alike as they are playing with them. This game consists of matching blocks by using only the sense of touch. Using touch as well as sight helps children learn the concept of shape and size.

To start the game, you pick out two blocks that feel the same; for example, two large thick hexagons (they will be different in color). Put one of the hexagons in a bag with several other blocks. Then show the other hexagon to the child, encourage him to feel it, and ask him to reach in the bag and try to find another block that feels just the same.

If the child makes a mistake, the game can be made easier by reducing the number of blocks in the bag. If there are two blocks in the bag, the child has to eliminate only one of them in order to find the correct block. If the child finds the game too easy, it can be made more difficult by putting blocks in the bag that are somewhat similar to the block that the child is trying to find. For example, if the child is looking for a large, thick circle, you could put it in the bag along with several small and large thin circles.

The second game ("Which One Is Different?") is designed to help a child understand the concept of "different." To begin the game, you make a set of three or more blocks that are the same color and the same shape. Then you add one block to the set that is a different color and a different shape. For example, you might pick out four blue triangles

and one yellow circle. You explain to the child that the four blue triangles are all the same shape, but that the yellow circle is a different shape. Than you put all the blocks in a bag and ask the child to find the block that is a different shape.

If the child likes this game, it can be extended. You can start with a set of blocks that are the same color and the same thickness (e.g., thick, red blocks). One block is added that is a different thickness (e.g., one thin, red block), and the child tries to find the block that is a different thickness. Or you can start with a set of blocks that are the same color and size (e.g., large, yellow blocks) and add one block of a different color and size (e.g., one small, blue block).

You can also ask the child to find the block that is a different color. Of course, it is not possible to feel the color of a block that is inside a bag. However, in some of the above examples, the block that is a different color is also different in some way that can be felt. It may be a different shape, thickness, or size.

If a child has difficulty understanding the meaning of the word "different," you can simplify the game by asking the child to find a specific block. Instead of asking the child to find the block that is a different shape, you can say, "Try to find the circle." Instead of asking for the block that is a differnt thickness, you can ask for the thin block, and so forth.

The third game ("Which One Is Missing?") helps a child practice labeling the blocks. It is a memory game in which one block is removed from a set of three different blocks and hidden in a bag. The child tries to remember the missing block and name it. If he does not remember it, he can feel the block inside the bag. Feeling the block will tell him the shape, size, and thickness.

The game can be played with any three blocks. However, if you pick one yellow, one blue, and one red block, the child can figure out the color of a missing block by a process of elimination. The game can be made harder by starting with two, three, or four blocks of each color.

In any of these games, a younger child might peek in the bag in order to find the correct block. If this happens, the child is indicating either that the game is too hard for him or that he is not interested. He is changing the rules from a game that involves touch to one that involves only sight. You should remember that the purpose of the bag is only to make the game more interesting. You can accept the child's change in the rules and play a visual game that will help him learn to label and compare blocks. For example, you can ask the child to put several blocks in the bag; then you can try to guess the blocks without feeling inside the bag. When you make a guess, he can look in the bag to see if you have guessed correctly. You can help the child learn labels for the blocks by asking questions like, "Do you have a small, thin triangle?" or "Do you have a big, red block?" You can help him learn the meaning of "same" and "different"

by showing him a block and asking him questions like, "Do you have a block that is the same color as this one?" or "Do you have a block that has a different shape from this one?" You can "give up" and ask him for hints: "Tell me what color it is," or "Is it big or small?"

When a younger child changes the rules of a game, it is often his way of asking to switch the roles of adult and child. He wants the adult to be the learner while he acts as the teacher. The adult can accept this change in roles and still help the child learn.

How Older Children Play with the Blocks

An older child usually understands how to analyze the separate attributes of the blocks. In his free play he may sort the blocks into logical sets. Because each of the blocks is limited to the same four attributes (shape, color, size, and thickness), it is possible to sort all of the blocks according to any one of the attributes, and then sort each of these categories according to a second attribute, and each of these categories according to a third attribute. For example, suppose a child divides the blocks into three colors. Then each of the colors can be sorted according to shape, and finally, each of the categories of same color and same shape can be sorted according to size. The child then would have thirty pairs of blocks which are the same color, shape, and size. It is also possible to reverse the process, starting with categories of blocks that are alike in three ways and combining them into larger categories of blocks alike in two ways and in turn combining them into categories of blocks alike in one way.

An older child is not necessarily going to sort the blocks in such a systematic and thorough way, but he probably understands this kind of categorization, and some of it may appear in his free play.

Playing Logic Games with Older Children

Older children enjoy memory games such as the Camera Game in which a block design is memorized. They may be interested in designs which are logical patterns. The adult can try various sequences and patterns. The task would be to remember the entire sequence or pattern, to fill in a missing piece, or to extend the sequence or pattern.

Older children may also be interested in games that involve discovering a logical rule. Three of these games are described in the instructions (pages 213-216).

In one game a child tries to predict the color of blocks in a bag by feeling them. The blocks are a special set. All the blocks that are the same color are also alike in some other way. They may be the same shape, the same size, or the same thickness. In other words, there is a logical rule that relates color to an attribute of the blocks that can be felt. For example, the rule might be: all the triangles in the bag are red, and all the circles are blue. In this case, color is related to the shape of a block. At first the child will have to guess the color of a block. However, after several blocks have been removed from the bag, he may see that the thickness and size of a block have nothing to do with the color, but that the shape does. A triangle is always red,

whether it is large or small, thick or thin; and a circle is always blue. Once the child discovers this rule, he will be able to predict the color of the other blocks in the bag.

A second rule game is similar. One player makes up a secret rule for sorting the blocks into "good" blocks and "bad" blocks. For example, all the blue blocks are "good" and the yellow and red blocks are "bad." The other players try to discover the rule. At first it is not possible to know which attribute of a small, thin, blue hexagon makes it a "good" block. However, when several examples of "good" blocks are found, and they are all blue, the players realize that color is the critical attribute, and they can figure out the rule.

If an adult tells a child a rule, much of the learning and the excitement of a rule game is lost. As with other logic games, it is difficult to give a hint that does not tell the solution. For example, if an adult makes statements during a game like, "This is a blue block and it is good," or "This is a red block and it is bad," she has given away the rule. Her language indicates that color is the attribute upon which the rule is based. Instead of having to figure out for himself that shape, size, and thickness are irrelevant, the child has been told.

All the rule games involve an element of chance. For example, if a child is guessing the color of a hidden block, he has one chance out of three of being right. The child can enjoy some success on the basis of luck. This makes the game fun to play, and eventually he may discover

the logical rule. The adult should be patient and wait until the child becomes interested in the logical part of the rule game.

If a child becomes frustrated with the rule game, the adult can give a non-verbal clue, such as grouping some of the blocks in a way that visually suggests the rule. If the child is still frustrated, the adult can try to think of an easier rule, or go back to an easier game.

Letting the Child Make Up Games for the Adult

Whether the adult is playing with a younger or older child, it is very important for her to allow, and even to encourage, the child to take a turn setting up the game or making up the rule. Even though a child usually changes the game considerably, he is relieved from the pressure of having to succeed on some memory or logic task. Most of the Logic Block games are too demanding for a child to tolerate for long without some relief.

When a child sets up a game, he often eliminates the logical part and turns the game into one of chance or luck. For example, if the game involves guessing the color of blocks in a bag, the child may put a random set of blocks in the bag and ask the adult to guess the color. In this case the game would be based completely on luck.

It is a higher skill to set up a logic game than to play one. However, even older children who understand the principle of logic games may initiate games of chance. More than anything, this tendency seems to come from a desire to trick the adult, to invent a game at which the adult is not superior. Games of chance make the players even.

Matching Games

The object of the game is to find inside the bag a block that is the same shape as a block outside the bag. Start the game at a level you think will be easy for the child, and make the game harder if he shows interest. There are several ways to play; here are some examples.

EXAMPLE 1

DO YOU WANT TO PLAY A GAME?
OKAY.
HERE, CLOSE YOUR EYES AND FEEL THIS TRIANGLE. FEEL THOSE SHARP CORNERS?
PUT TWO SHAPES (FOR EXAMPLE, A CIRCLE AND A TRIANGLE) IN THE BAG.
PICK OUT A BLOCK THAT IS THE SAME SHAPE AS ONE OF THE BLOCKS IN THE BAG. ASK THE CHILD TO CLOSE HIS EYES AND FEEL IT.
THERE'S ANOTHER TRIANGLE IN THE BAG THAT FEELS JUST LIKE THIS ONE. REACH IN THE BAG AND SEE IF YOU CAN FIND IT.
HERE IT IS!
THAT'S RIGHT. NOW WE HAVE TWO BIG TRIANGLES.

EXAMPLE 2

THE CHILD MAY PUT A LOT OF DIFFERENT SHAPES IN THE BAG AND WANT TO PLAY TEACHER.

SHOW THE CHILD AN EXAMPLE OF THE SHAPE YOU ARE GUESSING AND USE THE NAME OF THE SHAPE IN YOUR QUESTION.

THE CHILD MAY CHANGE THE RULES AND WANT YOU TO GUESS THE COLOR AS WELL AS THE SHAPE.

EXAMPLE 3

SEE IF YOU CAN GUESS WHAT'S IN THE BAG BY JUST FEELING THE OUTSIDE OF THE BAG.
IT'S BIG.
PUT ONE BLOCK IN THE BAG.
THAT'S RIGHT. DOES IT FEEL ROUND LIKE A WHEEL?
NO, LIKE A BLOCK.
YOU CAN HELP THE CHILD BY USING DESCRIPTIVE WORDS.

YES.
YOU MEAN THE SAME AS THIS SQUARE?
YOU CAN CORRECT THE CHILD WITHOUT CRITICIZING HIS LANGUAGE.

PICK 3 BLOCKS THAT DIFFER IN SHAPE AND COLOR. DESCRIBE THE BLOCKS AT THE START OF THE GAME.
NOW CLOSE YOUR EYES. I'M GOING TO PUT ONE OF THEM IN THE BAG.
OKAY OPEN YOUR EYES.
THE YELLOW ONE... YOU TOOK THE YELLOW ONE!
DO YOU REMEMBER WHAT SHAPE IT WAS?
A CIRCLE!
FEEL INSIDE THE BAG AND SEE IF YOU ARE RIGHT.
USE THE BAG TO LET THE CHILD CHECK HIS ANSWER.
WHAT'S MISSING THIS TIME?
AHHHH...
THE CHILD CAN GET A HINT BY FEELING INSIDE THE BAG.
REACH INSIDE THE BAG AND SEE IF YOU CAN FIGURE IT OUT.
IT'S THE ONE WITH POINTS.
THIS TIME LET'S HIDE ALL THE BLOCKS IN THE BAG AND GUESS THEM!
THE CHILD MAY WANT TO MAKE THE GAME HARDER BY PUTTING ALL 3 BLOCKS IN THE BAG.

Camera Game

The object of the game is to remember a design. Here is an example of how the game might go:

CLOSE YOUR EYES.
MAKE A PICTURE OR DESIGN WHILE THE CHILD HAS HER EYES CLOSED.
OKAY, OPEN YOUR EYES AND PRETEND YOU ARE A CAMERA. LOOK AT THE BLOCKS AND TAKE A PICTURE IN YOUR HEAD.
TELL THE CHILD TO PRETEND SHE IS A CAMERA.
HAVE YOU GOT THE PICTURE?
UH, HUH!
CLOSE YOUR EYES AGAIN.
MIX UP THE BLOCKS WHILE THE CHILD HAS HER EYES CLOSED AGAIN.
OPEN YOUR EYES AND DEVELOP THE PICTURE.
MAKE IT LOOK JUST THE WAY IT DID BEFORE.
HMM, LET'S SEE...
IS THAT RIGHT?
I THINK THIS WAS A RED CIRCLE.
IF THE CHILD MAKES A MISTAKE, CORRECT HER WITHOUT CRITICIZING.

What's Left?

The object of the game is to guess the color, shape, and thickness of blocks in a bag. The shape and thickness can be felt. The color eventually can be guessed by looking at the colors of the blocks that are outside the bag. Here is an example of how the game might go:

PUT ALL THE BLOCKS OF ONE SHAPE AND SIZE IN THE BAG.
LET'S PUT ALL THE BIG TRIANGLES IN THE BAG. NOW WE'LL TRY TO GUESS THE COLOR OF A BLOCK BY TOUCHING IT.
I GUESS THIS IS A RED ONE.
OOPS, IT'S YELLOW!
...AND IT'S THICK.
NO, IT'S RED!
THIS IS THE FAT BLUE TRIANGLE.
I FEEL ANOTHER THICK ONE. I'LL GUESS IT'S BLUE.

HEY, I'M RIGHT!
IT MAY TAKE SEVERAL GAMES BEFORE THE CHILD UNDERSTANDS HOW TO GUESS THE COLOR BY ELIMINATION. GIVE HIM TIME TO DISCOVER THIS FOR HIMSELF.
NOW THERE ARE THREE THIN TRIANGLES IN THE BAG. I'LL GUESS BLUE.
IT'S RED, MAYBE THIS IS THE BLUE ONE.
RIGHT, SO THIS MUST BE THE THIN YELLOW TRIANGLE.
THIS TIME I'LL FILL THE BAG. YOU CLOSE YOUR EYES.

THE CHILD MAY CHANGE THE RULES AND PUT A VARIETY OF SHAPES IN THE BAG. YOU CAN STILL PLAY THE GAME BY LOOKING AT THE BLOCKS LEFT IN THE BOX.

What's My Rule?

Inside the bag is a special set of blocks in which shape or size or thickness is related to color. In the example below, all the triangles in the bag are red and all the circles are blue (shape is related to color). The object of the game is to discover the rule for relating shape (or size or thickness) to color. The extra blocks you are not using should be out of sight.

CLOSE YOUR EYES. I'M GOING TO PUT A SPECIAL SET OF BLOCKS IN THE BAG.
IF POSSIBLE, PLAY WITH SEVERAL CHILDREN.
OKAY, NOW YOU TRY TO GUESS THE COLOR OF THE BLOCKS IN THE BAG.
WELL, HOW CAN I DO THAT?
I'LL GIVE YOU A HINT. I'LL REACH IN THE BAG AND FIND A BLUE CIRCLE.
I'LL GUESS A RED CIRCLE.
AT FIRST THERE IS NO WAY TO KNOW THE COLOR OF A BLOCK.

NO, THIS IS ANOTHER BLUE ONE.
THIS MUST BE ANOTHER BLUE CIRCLE.
OH, THEY'RE ALL BLUE. I'LL GUESS A BLUE TRIANGLE.
BUT AS MORE BLOCKS ARE REMOVED, A PATTERN DEVELOPS, AND THE COLOR CAN BE PREDICTED.

OH NO, I'M WRONG AGAIN!
OH, I SEE. THE TRIANGLES ARE RED...
...AND THE CIRCLES ARE BLUE!
IF THIS LOGIC GAME IS TOO HARD, MAKE IT A MEMORY GAME. SHOW THE CHILDREN THE BLOCKS BEFORE YOU PUT THEM INTO THE BAG.

Good and Bad

One person makes up a rule that tells which blocks are "good" and which are "bad." The rule may be based on color, shape, size, or thickness. The other players try to discover the rule.

In this example the rule is: ALL THE RED BLOCKS ARE "GOOD"; THE YELLOW AND BLUE BLOCKS ARE "BAD."

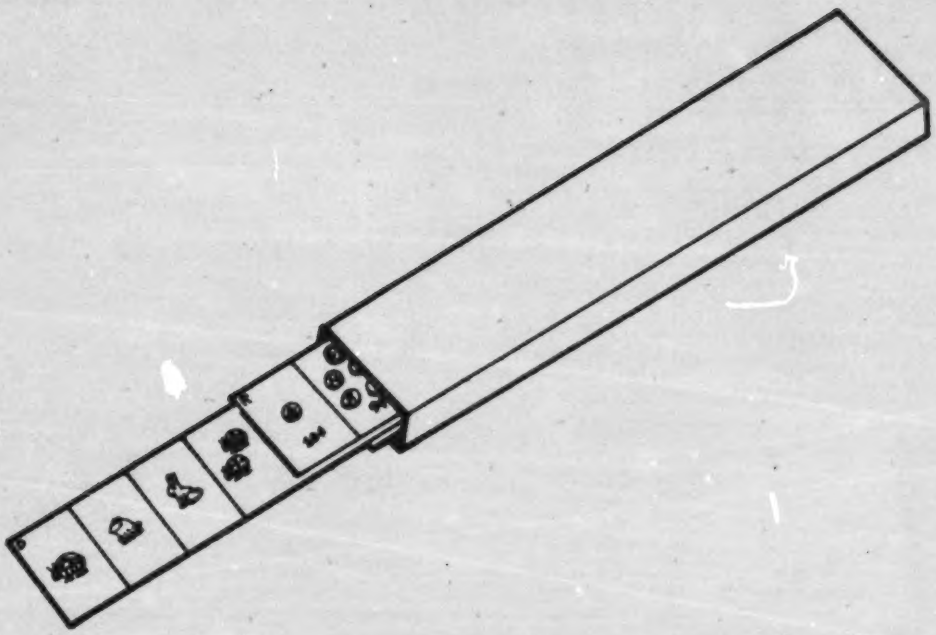
PUT ALL THE BLOCKS ON THE FLOOR AND EXPLAIN THE GAME. IF POSSIBLE, PLAY WITH SEVERAL CHILDREN.
I'M GOING TO MAKE UP A SECRET RULE. ACCORDING TO MY RULE SOME OF THE BLOCKS ARE "GOOD" AND THE REST ARE "BAD".
YOU CAN PICK UP ANY BLOCK AND GUESS WHETHER IT IS "GOOD" OR "BAD." IF YOU'RE RIGHT, YOU GET TO KEEP THAT BLOCK. IF YOU'RE WRONG I GET THE BLOCK.
I DON'T UNDERSTAND.
OKAY, I'LL SHOW YOU. PICK OUT ONE BLOCK.
DO YOU THINK THAT BIG RED SQUARE IS GOOD OR BAD?
GOOD.
HOW ABOUT THIS ONE?
THAT'S RIGHT. YOU CAN KEEP IT.

DO YOU THINK THAT BLUE HEXAGON IS GOOD OR BAD?
GOOD!
NOPE, I GET THAT ONE.
REMIND THE CHILDREN THAT THEY CAN GUESS "BAD" BLOCKS ALSO.
THIS OTHER BLUE SQUARE IS BAD.
THAT'S RIGHT. YOU CAN KEEP IT.
CONTINUE PLAYING UNTIL ALL THE BLOCKS HAVE BEEN COLLECTED.
NEXT TIME YOU PLAY, USE A DIFFERENT RULE.

This game can be difficult. Children may not discover the rule until they have guessed many times. If they seem to be frustrated by your rule, give them a hint by showing them several blocks that are "good." Many different rules are possible, for example:

1. All the big blocks are good.
2. All the triangles are good.
3. All the thin blocks are good.
4. All the blocks that are red or circles are good.
5. All the blocks that are small or triangles are good.
6. All the blocks that are yellow and thin are good.
7. All the blocks that are blue, square, and small are good.

SEQUENCE GAMES



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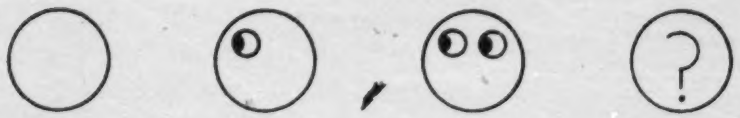
Sequence Games

The Sequence Games contain a set of patterns printed on long strips of heavy paper. A series of pictures, shapes, or numbers is printed on each sequence strip. The patterns on the strips are slowly pulled out of a sleeve to reveal one new figure in the sequence at a time. The object of the game is to predict what the next picture in the sequence will look like by analyzing the part of the pattern that is already visible.

In order to predict what the next frame of the pattern will look like, the figures on the strip must be arranged in a necessary sequence. In the following pictures, it is possible to see a pattern, but it is not possible to predict the next picture because there is no orderly sequence:

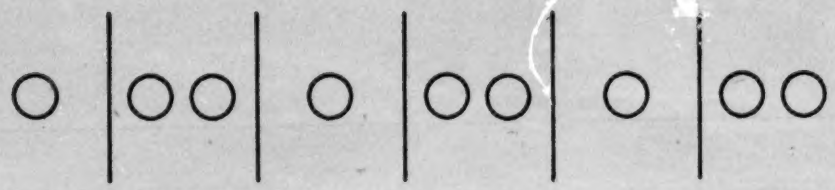


Will the nose be added next, the mouth, the ears, the hair, or what? The most common orderly sequence is a number sequence, such as counting. All the printed patterns in the Sequence Games are like number patterns.

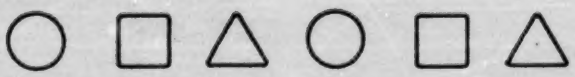
Alternating and Overlapping Patterns

The simplest kind of number pattern is one that alternates between two elements. It is like counting with only two numbers: 1...2...1...

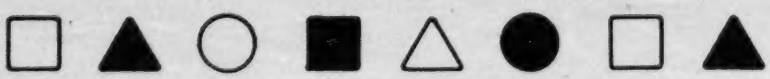
2...1..., except that the pattern consists of colors, shapes, or pictures instead of numbers:



Some of the patterns involve three or four elements that repeat in the same sequence:



The most difficult repeating patterns are those in which there is more than one pattern in a series of figures. The patterns overlap each other. For example, the figures may have a color pattern of 1...2... 1...2... and a shape pattern of 1...2...3...1...2...3. It would look like this:



In order to predict the next frame in this pattern, it is necessary to separate the color pattern from the shape pattern and analyze them independently. For example, suppose this much of the pattern can be seen:

If a child sees that only the shapes are repeating, he can predict that the next frame is a circle. If he sees only that the colors are repeating, he can predict that the next frame will be blue (shown here as solid black). If he sees both patterns and analyzes them independently, he can predict that the next figure will be blue and a circle.

In a series that has a simple repeating pattern, all the elements of a figure are identical each time the figure is repeated. In a series that has several overlapping patterns, the patterns are repeated but the elements of a figure change each time the figure is repeated.

Number Sequence Patterns

A second type of pattern is a continuous number sequence. The simplest example is counting. Each frame is one greater than the previous frame: 1...2...3...4...5...6... No frame is repeated. A great variety of this kind of pattern is possible. Any card in which a constant mathematical change is made with each successive frame will form this kind of pattern. Patterns that use numerals can focus on larger numbers and the relationships among them. The following are examples using the common number operations.

Addition: Five can be added to each frame--

2.....7.....12.....17.....22

Subtraction: Three could be subtracted from each frame--

23....20.....17.....14.....11

Multiplication: Each frame could be multiplied by three--

2.....6.....18.....54.....162

Division: Each frame is divided by four--

256....64.....4.....1

The patterns can be made extremely difficult.

Some Patterns Are More Difficult Than Others

There is no exact sequence of difficulty with the Sequence Games. In general, the easiest are simple repeating patterns. Next in difficulty are simple number sequences. More difficult are the overlapping patterns, and most difficult are complicated number series patterns.

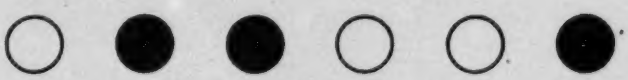
If a pattern consists of pictures or shapes, a child sometimes sees the pattern before he understands it. He begins to predict correctly, but does not understand why and is surprised that his prediction is correct. Gradually, he will be able to analyze the pattern. However, you should not expect a child to justify his predictions, or to explain an entire pattern until he is able to predict a pattern very easily.

Set Breakers

Some of the strips differ from the established patterns. They are called "set breakers" because they require a change in a child's way of thinking (his mental set). Set breakers make the Sequence Strips more interesting. They also help a child develop flexibility in solving logic problems.

The set breakers involve the same kinds of patterns, but include a new twist that requires new insight. For example, an alternating pattern usually looks like this:

A simple set breaker might look like this:



The alternating pattern is still there, but a child has to look at four figures instead of two in order to see one cycle of the pattern.

A more difficult set breaker that includes an alternating pattern might look like this:

If the pattern is divided into color cycles, it can be seen that there are a different number of figures in each cycle and that the number of red figures form a pattern:

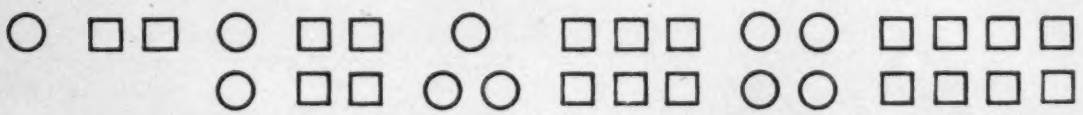
A common set breaker in the continuous number patterns is one that increases in number the first half of the pattern and then decreases in the second half of the pattern:

1 2 3 4 5 4 3 2 1

In the middle of the pattern the child has to change his perspective and use a different hypothesis to predict the last half of the pattern. Another common set breaker produces this kind of pattern:

1 2 2 4 3 6 4 8 5 10

This pattern is hard to see because it is really two patterns. Two simple number sequences are alternating, 1-2-3-4-5 and 2-4-6-8-10. If the two patterns are made visually distinct, the pattern is much easier to predict:



Children Formulate Their Own Questions in Order to Make Predictions

As with any game that involves discovery learning, the key to understanding a pattern is asking the right question. Suppose only a few parts of a pattern are visible. You may ask the child, "What came after red last time?" It would be relatively easy for the child to

recognize that the pattern is repeating and that the next figure would be yellow. Or again, suppose the following parts of a pattern were visible:

1.....3.....6.....10.....?

You could ask the child questions like, "How many were added to 1 in order to get 3, how many were added to 3 to get 6, how many were added to 6?" Once you ask him these questions, however, much of the solution has already been stated, and the child has little left to discover. Therefore, the role of the adult is to give a child time to discover these questions for himself.

The number patterns in the Sequence Strips provide a good example of how a skill can be practiced through discovery rather than drill. The usual way to practice arithmetic skills is for the teacher to ask a question and the learner to answer it. Question--"What's 2+2?" Answer--"4." In the Sequence Games the questions and answers are not separated. The learner discovers his own question by looking at the visible part of the pattern. Then he answers his question by predicting what the next frame will show. He pulls out the strip a little way, looks at the answer, and then uses this new information to formulate his next question. Being responsible for both the question and the answer is an exciting way to develop an intellectual skill.

When a strip is completely hiidden in its folded case, it is obvious that no question can be formulated about the first frame of the pattern. Some children and adults, however, enjoy making wild guesses. When the first frame is visible, many possible questions can be based on such a small amount of information. For example, if the first frame shows a red circle, a

child could ask himself questions like: Will the next frame show another circle, or another red figure? Will there be two red circles? Will there be some other shape, or some other color? As each frame is shown, additional information is revealed and the number of possible questions is reduced and refined until one hypothesis emerges that explains the pattern. Each frame thereafter confirms that the explanation is correct.

A Child Must Take Risks in Order to Make Logical Guesses

A guess at any point involves taking some risk because it is always possible that the guess will be wrong. An adult can judge how confident a child is with the Sequence Games by observing how willing he is to take risks. If he guesses when only a little of the pattern is visible, it is a sign that he enjoys the game. He is not threatened by a mistake. If he makes a wrong guess, he uses this new information to make his next prediction.

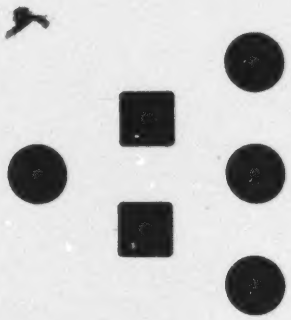
On the other hand, a child, or adult, who is afraid of being wrong may guess silently to himself. If he is wrong, then no one will know about it. Sometimes a child will memorize a strip and then pretend that he is predicting what will come next. Memorizing a strip may be another sign that a child is unwilling to take a risk. Other children show they are afraid to take a risk by peeking at the next frame.

Taking a risk by formulating a tentative hypothesis, or a logical guess, is an essential part of solving any logic problem. You can help a child develop his problem-solving ability by encouraging him to take risks, but this assistance must be very subtle. A child cannot be forced to take risks. In fact, direct encouragement to take

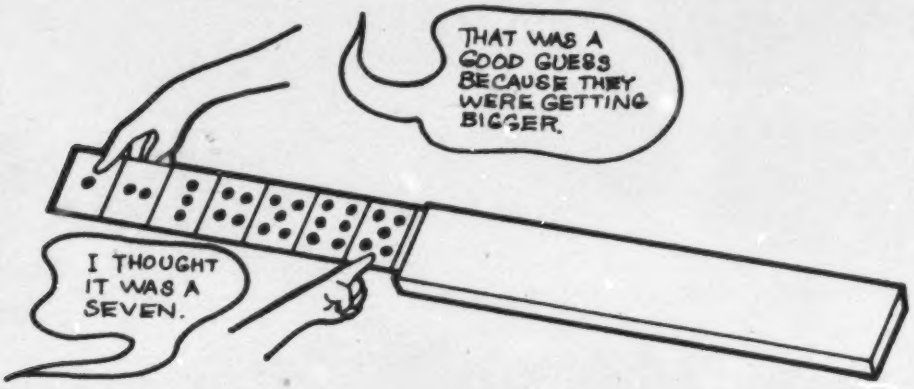
a risk may make him more fearful of being wrong and appearing foolish. If you explain a pattern to a child and try to show him how "easy" it really is, the child's willingness to take risks does not necessarily increase. He may feel even less confident after being shown that he was afraid of such an "obvious" pattern.

The most important way you can help is to be patient and wait for a child to develop confidence. If a child has looked at sequence strips for several days without guessing out loud, you can help him by asking a question that involves two specific choices. For example, you might ask, "Do you think the next picture is red or green?" If a child is pretending to predict the next frame, but is actually peeking, you can let the child know that he can look at the next frame any time he wishes by simply pulling the strip out of the case.

You can show a child an example of risk-taking. You can avoid making a special effort to memorize the strips yourself. Occasionally, when only a small part of the pattern is visible, you can guess what will come next. Even if you do remember a pattern, you can sometimes intentionally make a wrong guess that is logical. For example, suppose the following part of a pattern is visible:



You might guess four squares, even if you remember that the pattern repeats and that the next frame is one square. If the child makes a wrong guess that is logical, you can support him by explaining why it was a good guess.



Risk-taking is most likely to occur when the child sees the sequence strips as a game, and not as a lesson. You must constantly resist the temptation to become the authority and use the Sequence Games as a test. If you relax, watch the child guess, and occasionally guess yourself, the Sequence Games can be fun. If you ask the child a lot of questions, criticize his predictions, and expect him to explain the logic of the patterns, the experience can have a very damaging effect on the child's willingness to take risks and to solve logical problems.

The adult can channel her desire to be instructive into making new patterns. Children often memorize the patterns after using them several time; thus, in order to extend the usefulness of the game, it is necessary to make additional strips. The following instructions include several examples.

INSTRUCTIONS FOR PLAYING SEQUENCE GAMES

Note: The pictures on the following pages show the sequence strips being used in a box, which you can have made locally if you want a durable container. However, all you need is a simple homemade cardboard sleeve that lets you pull out one strip at a time. A piece of tagboard or cardboard, folded once and stapled or taped closed, will provide a very suitable container.

HOW TO PLAY WITH THE SEQUENCE GAMES

1. Put several of the Sequence Ga. s in the cardboard sleeve. Start with easy patterns (lower numbe cards) and add others as your child shows interest.

2. Ask the child if he wants to play a guessing game. If he does, pull out the strip just far enough to show the first frame of the pattern.

3. Give the child a choice of either looking at the next frame or trying to guess what it is before looking at it.

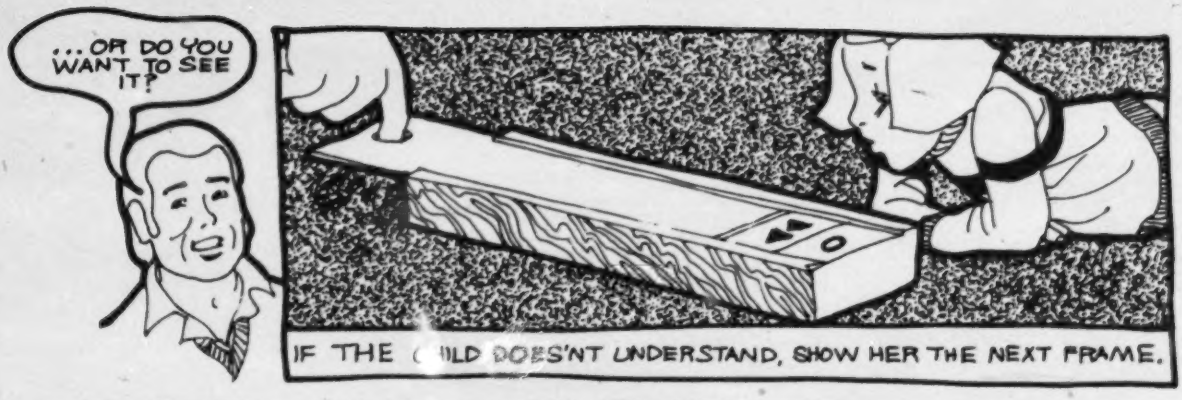
4. If the child doesn't want to guess, let him pull the strip out far enough to see the next frame.

5. If the child makes a guess, let him immediately pull the strip out and see if he is right or wrong. Do not criticize his guessing with questions like "Are you sure?" or "Why are you guessing that?"

6. Continue exposing the pattern one frame at a time. Each time let the child choose either to guess or to peek.

7. If the child guesses only part of the pattern, accept his answer. The next time he plays with this strip, he may discover more of the pattern.

WOULD YOU LIKE TO PLAY A GUESSING GAME?
OKAY.
I'M GOING TO PULL OUT THE LID JUST FAR ENOUGH TO SEE THE FIRST SHAPE.
A CIRCLE...
DO YOU WANT TO GUESS WHAT COMES NEXT?


...OR DO YOU WANT TO SEE IT?
IF THE CHILD DOESN'T UNDERSTAND, SHOW HER THE NEXT FRAME.

DO YOU WANT TO GUESS WHAT'S NEXT, OR LOOK AT IT?
I'LL GUESS THREE TRIANGLES.
THAT WAS A GOOD GUESS. YOU THOUGHT THE PATTERN WAS ONE, TWO, THREE.
SUPPORT THE CHILD WHEN SHE MAKES LOGICAL GUESSES THAT ARE WRONG.

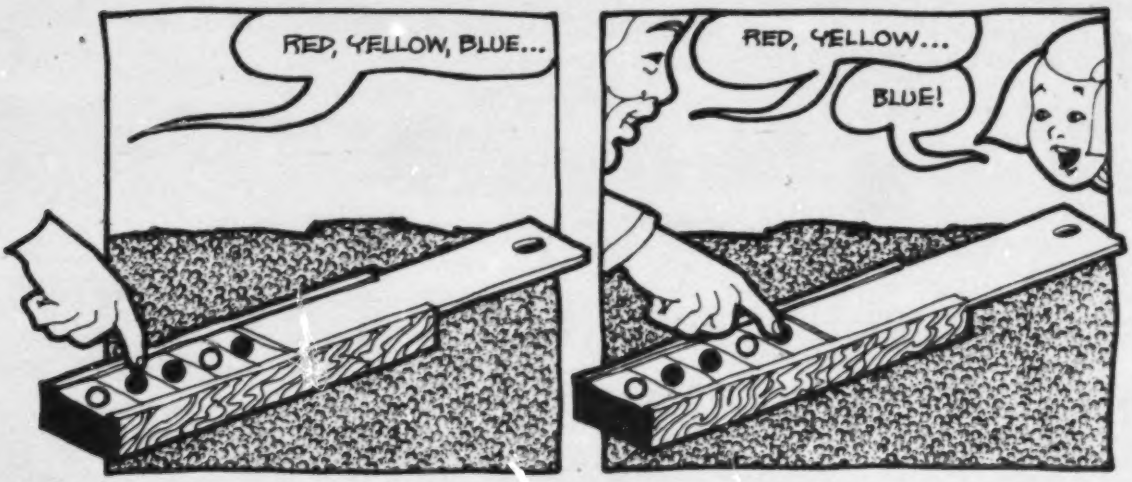
NOW IT'S GOING TO BE SOMETHING BLUE.
THAT'S RIGHT.
IF THE CHILD GUESSES ONLY PART OF THE PATTERN, ACCEPT HER ANSWER.

NEXT IS A SQUARE.
OKAY, PULL OUT THE LID AND LET'S SEE.
DON'T CRITICIZE THE CHILD'S GUESSES WITH QUESTIONS LIKE, "ARE YOU SURE?" OR, "WHY ARE YOU GUESSING THAT?
OH, IT'S A TRIANGLE. THIS TIME I BET IT'S A SQUARE.

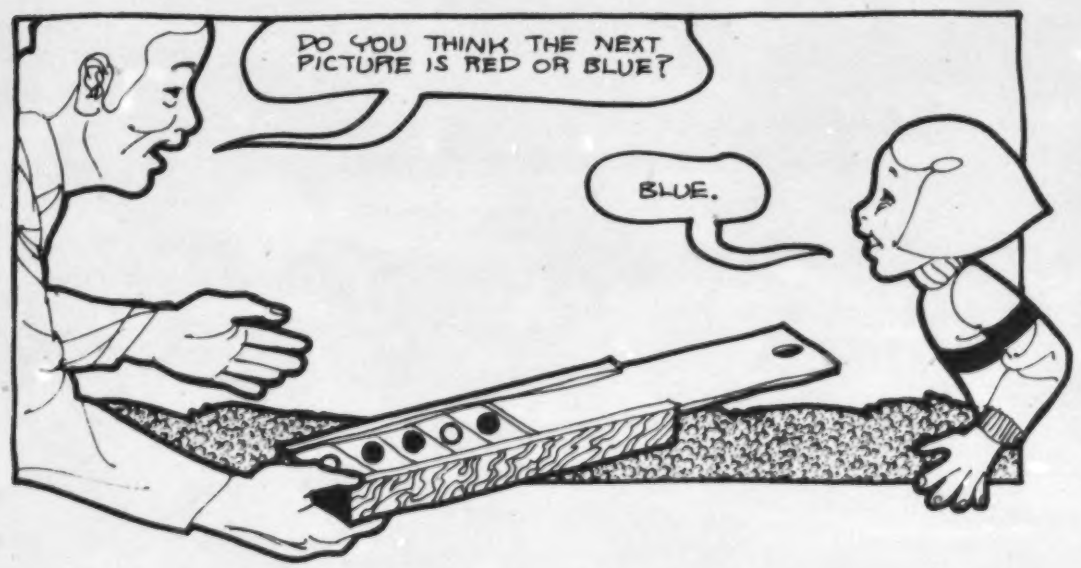
Ways to Give Hints

If you feel a child is interested in a pattern, and needs just a little help to discover it, give her a hint. However, give as few hints as possible. The more the child discovers the pattern for herself, the more she will learn from this game. Here are two suggestions for giving hints:

1. Describe to the child what you see in the frames that have already been uncovered.



2. Ask the child a question that gives her a choice between two specific answers.



Making Your Own Patterns

Here are some other suggestions for number patterns:

1. Adding 10:

   3 13 23 33 43 53 63

2. Adding 5:

   2 7 12 17 22 27 32 37

3. Adding 1, then adding 10:

   1 2 12 13 23 24 34 35 45

4. Subtracting 2:

   20 18 16 14 12 10 8 6 4 2 0

5. Counting by 2's, 3's, 4's, 5's:

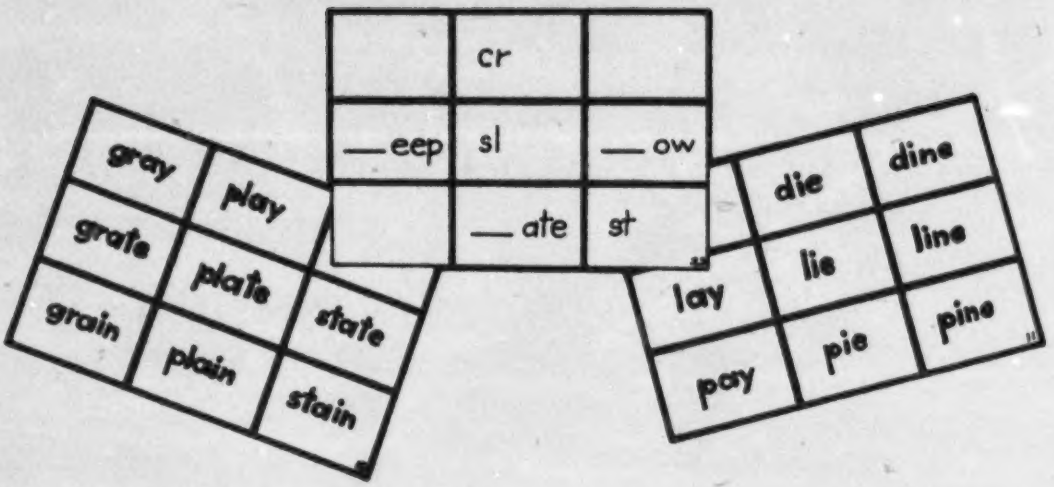
   2 4 6 8 10 12

   3 6 9 12 15 18

   4 8 12 16 20 24

   5 10 15 20 25 30

PHONOGRAM MATRIX GAMES



Phonogram Matrix Games

The purpose of the Phonogram Matrix Games is to provide children problem-solving experiences related to language. They are <u>not</u> a "phonics exercise" to be used to teach letter sounds separate from words; instead they provide children the opportunity to be agents who "figure out" what word goes in the blank cell by discovering what the missing word has in common with the printed words.

	bill	bit
hat	hill	hit
sat	sill	sit 1

This set of cards is numbered and organized into five groups, with each group printed on different color cards. The groups differ in difficulty because of the way cues are presented on the <u>back</u>, or deductive, side of the cards. (The front, or inductive sides, are those showing all but one complete word.)

On some of the numbered cards, beginning consonants are the same <u>across the rows</u>; endings, or phonograms, are the same <u>down the columns</u>.

	bill	bit
hat	hill	hit
sat	sill	sit 1

bum	hum	sum
	hunk	sunk
bad	had	sad 4

Other numbered cards are arranged in the opposite manner. The children will discover this arrangement after a while.

*The Phonogram Matrix Games were created by Maurice Lyons, Barry Barnes, and Ron Warner.

Instructions

1. Flip through the set of cards. See what they look like.
2. Place a thin sheet of paper over a card and complete the blank cells. Work both sides of a couple of cards in EACH set. Do not write on the cards.
3. Think how you might use these games before reading our suggestions.

There is one basic game--to fill in the missing letters or words. How you play will depend mainly on the individual child you work with. The color-coded, numbered structure moves from "easy" to "difficult." But you can help a child be successful by being aware of other factors.

One factor is, of course, can he read? Another is, can he name letters? If he can do neither of these, he should play other games. The content of these cards is designed for "average" second and third graders, although some first graders may do well also.

This chart shows what the child might do as he plays.

		For Beginning Readers		For Readers
		Name beginning & ending letters	Write beginning & ending letters	"Read" words with or without writing
CARDS	1 - 5	x	x	x
	6 - 10	x	x	x
	11 - 20	x	x	x
	21 - 25	x	x	x
	26 - 27	x	x	x

In other words, the child could name, write, or read using any of the cards. The easiest task is for the child to play with Card #1 and just name the first letter of the missing word (the adult would write it on a blank card for him) and then name the letters that end the word. The most difficult task may be to play with Card 27 and "read" the missing word or words. There are various levels of difficulty between these two cards. It is up to you to see that each child succeeds and also is challenged; you can do that by providing the cards best suited to him and by having him name, write, or read the missing words.

The "front" side (the side that shows the most words) of any card shows all but one word (or part of a word, as on Cards 21-25). The back side shows only that word or the rest of it. This self-correcting feature lets the child check himself after he has tried to solve either of the sides.

ride	ray	rake
side	say	sake
wide	way	15

Front

		r
		s
_ide	_ay	wake 6

Back

When using the front side, you may increase the difficulty by covering more than one or two cells with small index cards.* Actually, as a very challenging game, you can cover all the cells (boxes). Then a child can play "Beat the Matrix."

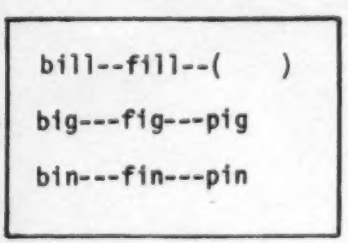
*Just cut out (from a piece of plain tagboard, construction paper, or cardboard) a set of nine 3"x2" cards to cover the cells (boxes).

That is, the matrix is his opponent. In order to win, he tries to name as many words as possible, uncovering one card at a time. For every word he misses, the matrix gets the card (i.e., a point). For every word he names correctly, he gets the card or point. After all the cards have been removed, count the cards that belong to the matrix and count the child's. Of course, the one who has the most cards is the winner. In the beginning, a player must sacrifice some cards in order to see some words, but when he is skilled, he can always beat the matrix by a 6-to-3 or 5-to-4 score.

When using the back side of the cards, place a sheet of thin paper over the card. The child can see through it well enough to trace the letters given and to write in the missing letters and words. Do not write on the cards themselves.

Children may be able to play independently, but for beginning readers it is important that an adult play an important part. You read the words on the cards first, let the child figure out what letters go in the empty cell, and then read the word the child puts together. Encourage children who already can read to play this way with those who are just beginning to read.

Each set of color cards can be enlarged if you make extra cards yourself. For example, in the first ("easy") group, you can add cards that use a matrix like this:



Front

b	f	p	
		pill	ill
			ig
			in

Back

plus others running: men, man, mill

(front) pen, , pill

ten, tan, ill

(back)

	en	an	ill
m			
p		pan	
t			

(front) bent, lent, sent
bet, let, set
bag, lag,

(back)

	b	l	s
			sag

ent
et
ag

(front) mink, mat, man
pink, pat, pan
rink, , ran

(back)

	ink	at	an
m			
p			
r		rat	

Try to develop at least one extra card for each of the other "color" groups of cards. Check your "new" cards with a reading teacher or with your instructor to be sure that your phonograms are correct.

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